MARCH,
1939

The JOURNAL of SPEECH DISORDERS

Editor

G. OSCAR RUSSELL, PH. D.
Columbus, Ohio

Collaborating Editors

JEAN TARNEAUD, M. D.
Paris, France

DOUGLAS GUTHRIE, M. D.
Edinburgh, Scotland

M. NADOLECZNY, M. D.
München, Germany

H. BERING LIISBERG, Ph.D.
Copenhagen, Denmark

YOSHIO HAYASHI, PH. D.
Tokyo, Japan

F. HOGEWIND, M. D.
Den Haag, Holland

M. SEEMANN, M. D.
University of Prague
Czechoslovakia

Official Publication, of the American Speech Correction Association in its 14th year.
Editorial Office: Speech Clinic, Ohio State University, Columbus, Ohio.

Volume 4 : Number 1

NIVERSITY OF MICHIGAN
THE HORACE H. RACKHAM
SCHOOL OF GRADUATE STUDIES
ANN ARBOR
INSTITUTE FOR HUMAN ADJUSTMENT

$3.00 per Year
Single issue $1.00

610.5
J86
S74

CONTENTS

PAGE

2-A Audiometer Norms for Determining Hypacusia in Children Between the Ages of Four and Eight ... *Martha Ellen Black* 3

Examination and Re-education of Aphasics, *Samuel D. Robbins, A.M.* 15

Methods of Treatment for Spastic Speech, *Helen R. Fagan, M.A.* 25

Formal Discussion on Spastic Speech ..... *Samuel D. Robbins* 32

Personality Traits and Voice Quality Deficiencies, *Wilbur E. Moore, Ph.D.* 33

American Speech Correction Association 38

Officers of the Association 39

Standing Committees 39

Alphabetical List of Members 40

Geographical Directory 58

A Survey of Speech Defects in Illinois High Schools, *Raymond Carhart, Ph.D.* 61

Studies of Growth of Speech in Pre-School Children, *Mildred Templin and M. D. Steer* 71

Changes in the Election of New Members 78

Studies in the Psychology of Stuttering, XIII. A Statistical Analysis of the Adaptation and Consistency Effects in Relation to Stuttering .. *Wendell Johnson and Marjory Inness* 79

The Year 1938 in Speech Correction, *Sara Stinchfield-Hawk, Ph.D.* 87

Progress on Pepper-Boland Bill 96

The JOURNAL OF SPEECH DISORDERS is published quarterly in March, June, September, and December of each year by the American Speech Correction Association; $1.00 a copy; $3.00 a year (Canada and foreign, $3.50). All communications and subscriptions should be sent to the editorial and business office: Speech Clinic, 324 Derby Hall, Ohio State University, Columbus, Ohio.

Entered as second-class matter at the Post-Office in Columbus, Ohio, under Act of Congress, of March 3, 1879.

2-A AUDIOMETER NORMS FOR DETERMINING HYPACUSIA IN CHILDREN BETWEEN THE AGES OF FOUR AND EIGHT

MARTHA ELLEN BLACK
Ohio State University

The importance of discovering hypacusia or diminished hearing in children before it has seriously retarded their education is coming to be more and more realized.

Lillie Eginton Warren states in *Defective Speech and Deafness*: "During childhood an illness such as diphtheria or spinal meningitis may cause serious if not complete deafness. As the patient recovers strength, he finds that he cannot understand other people. His own speech becomes sadly affected, thick and indistinct and his voice changes to an unnatural tone; or he may lose what little prattle he formerly possessed. If he should be under a year in age and has not spoken, his deafness will not be known for a time. Long continued silence on his part, however, will reveal the truth. . . . When deafness resulting from disease is but slight, the child is much more likely to be neglected through lack of knowledge on the part of his parents as to what his condition demands. He is sent to school where perhaps the fact that his hearing is impaired may not be known by the teacher. He may be aware that he hears badly; he certainly cannot turn both ears at the same time toward the person speaking and thus in his anxiety he forms the habit of listening with only one ear. Both may have been equally good but continued effort of attention through one renders the other useless. The child should be taught to use the left and the right ear on alternate occasions. His deafness may be so comparatively slight at first as to be scarcely noticeable, but frequently that is the beginning of a progressive disease which slowly shuts the individual out of the world of sound."

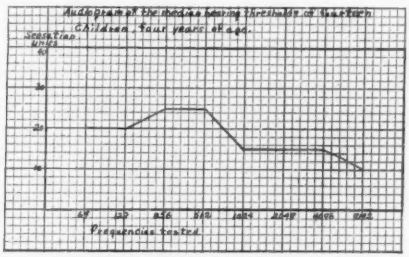
In *Ears and the Man*, Peck, Samuelson and Lehman say, "Several years of pioneer labor in a new field of social service has brought us face to face with a glaring educational evil. While educational methods have developed to meet the special problems of all types of children, we still find an unnecessarily large class drifting and groping their way through an intricate educational maze. Partial deafness is frequently unrecognized either by its victim or by the guiding individuals of his environment."

Twenty states have laws which provide that every child attending public school should be separately and carefully tested and examined at least once every year to ascertain whether it is suffering from

defective sight or hearing or from any other physical disability tending to prevent such child from receiving full benefit of school work.

In an article in the *Volta Review* of October, 1929, Dr. Horace Newhart says, "It is admitted by all who have studied the subject that the one greatest hope for success in preventing deafness in any large way lies in the earliest possible detection of even slight hearing defects which may indicate in the individual the presence of diseased conditions. These conditions if not removed may ultimately lead to greater hearing loss. This is the underlying principle of preventive medicine in all fields but applies with special force in the prevention of deafness. The most favorable period to apply this principle is during the school life of the child. Many cases should receive attention even in the pre-school age of infancy.

Alice N. Vogt, of the Phonetics Laboratories, O. S. U., did some research work in establishing techniques for testing children of elementary school age with the 4-A audiometer.[1] She found that


Audiogram of the median hearing thresholds of fourteen children, four years of age.
Sensation units
Frequencies tested

Audiogram of median hearing thresholds of fourteen children, four years of age.

it was possible to test any child who could understand the directions and repeat one or two digits. However, such a test of hearing is satisfactory only in weeding out the children with a possible hearing loss, and does not accurately indicate the percent loss for each frequency as does the 2-A audiometer.

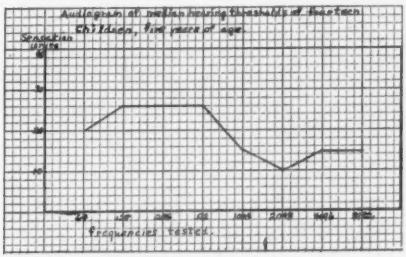
It is very important that we be able to determine the actual loss in hearing over not only the entire range but also on each frequency since the type of hearing loss varies with its cause and is different in its effect on the person suffering from it.

A severe loss on the low frequency tones may be realized as such much sooner than one on high frequencies. For it involves the voice range, and that carries our very loudest speech sounds:

[1]The 4-A audiometer is equipped with a disc on which digits are recorded. The digits are reproduced by a phonograph to which a series of ear-phones are attached.

intonation and vowels which are from 200 to 700 times as loud as the high frequency whispered consonants. When we no longer hear that loud voice, we know we are deaf. But if we lose the power to hear the consonants but still perceive that dominating loud voice we still assume we hear normally, when as a matter of fact, all of the speech meaning carried by those consonants is lost. As a result, the mind is confused even though one has apparently heard. And dull incomprehension must invariably show on such a child's face—a look all too often unjustly confused with that of a stupid or mentally inferior individual. Or the child may seem to appear listless and disinterested and tire quickly when he is listening in class since his mind must fill in the gaps left by his failure to hear *s*, *f*, *th*, and other high frequency sounds.

Experimental work has shown a threshold of hearing difference between the age groups of twenty years and thirty years, but so far as the author has been able to ascertain, there has been no experimental work done to determine the normal hearing curve for children



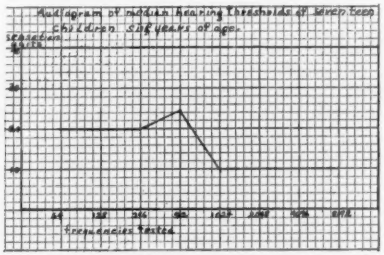
Audiogram of median hearing thresholds of fourteen children, five years of age.

under the age of nine, although without such established norms, no accurate measure of hypacusia in children can be obtained.

Dr. C. C. Bunch and Dr. L. S. Raiford made a study of race, age and sex variations in auditory acuity in 1931. The averages of the thresholds of auditory acuity secured by audiometric measurement on patients at Johns Hopkins Hospital were computed according to age, sex and race. The results show a difference in acuity for both age and sex groups among those tested, but there are no records for those under twenty years of age. There was a slight difference between the acuity of white males and white females, tones of faint intensity being heard better by white males than by white females up to 2048 double vibrations per second; and that for females shows greater acuity for males. This is true for all of the age groups tested.

In each successive decade, the average threshold is slightly lower. That is, the intensity necessary to make the frequency heard increases. This is more marked for tones of high frequency than for tones of low frequency, and the difference between the averages for each age group is greater as the stimulating frequency increases.

Dr. S. J. Crowe, in collaboration with Stacy R. Guild and Walter Hughson, obtained results which bear out those in the study by Bunch and Raiford. Audiometer curve variations due to differences in age were determined by testing the hearing of 353 patients between the ages of 20 and 70 years. A chart containing the average curve for each decade shows that the low tones are heard equally well by all groups, but that the acuity for the high tones decreases with each successive age group. That casts justifiable doubt on the tendency to use the single threshold norm (provided by the Western Electric Company) without regard to age, sex or race. But with correction factors it serves best for general purposes.



Audiogram of median hearing thresholds of seventeen children, six years of age.

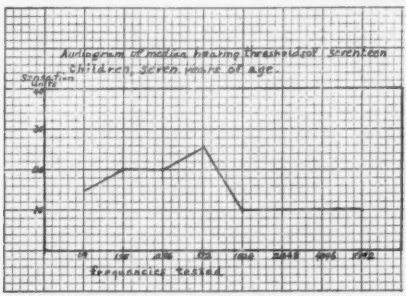
Accepting as a normal threshold for adult hearing that standardized by the Western Electric Company in the development of the audiometer, the determination of norms for young children necessitated the giving of a large enough number of tests to determine the normal threshold for their hearing relative to that of adults.

The apparatus used to measure the hearing in this study was the 2-A audiometer developed by the Western Electric Company. It is essentially a vacuum tube oscillator equipped with the necessary controls for regulating the frequency and output. The oscillator generates single-frequency oscillating electric currents which produce tones in the specially designed receiver. There are eight pitches ranged at octave intervals, the intensity of which may be varied.

The audiometer is so calibrated that when the intensity control dial is set at zero hearing loss for any one frequency, that tone should

be just perceptible to the average adult with normal hearing sensitivity. The hearing loss is measured in sensation units, an arbitrary measurement which is defined by the Western Electric Company as follows: "When the dial is rotated, thus changing the voltage at the receiver terminals, the number of sensation units corresponding to this change is equal to twenty times the common logarithm of the voltage ratio. At any given pitch the pressure on the ear is proportional to the voltage. The pressure on the ear is, therefore, changed by a ratio of 10 to 1 when the dial is rotated through 20 sensation units. The energy absorbed by the ear is changed by a ratio of 10 to 1 by rotating the dial through 10 units. The smallest steps are five sensation units corresponding to a pressure ratio of 1 to 1.77 or an energy ratio of 1 to 3.16."

The hearing loss, as read from the sensation units scale of the intensity control may be represented graphically on a chart designed for that purpose. The hearing graph used in this experiment was



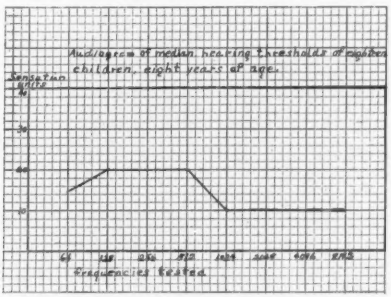
Audiogram of median hearing thresholds of seventeen children, seven years of age.

one devised by Dr. G. Oscar Russell, of Ohio State University. It differs from the audiogram supplied by the Western Electric Company in that it shows at a glance, not only the sensation unit loss, but the percentage loss or residium, stated in terms: of the median; whole range; low pitched intonation vowel or voice range; high pitched consonant; or piano range. In other words, it is at a glance pedagogically diagnostic.

The utmost care was taken to use only tests of children whose histories showed no record of ear trouble or diseases which might have affected their hearing. Case history blanks similar to those which had been devised for examination of hearing of incoming O. S. U. students were filled out for each child. Where there had been a disease accompanied by high fever, enlarged or imbedded tonsil or adenoid growth, head injury or any record of ear pathology, such children were not included.

The technique used in testing children varies considerably from that which has proved practical in testing adults. There are several factors to be kept in mind which we may to a greater degree disregard with adults or older children. Chief among these is the briefer attention span of the child which influences any test results, to such a degree that it cannot be overlooked. This flight of attention from one thing to another is evidenced by the young child's conversation, his plays and quick changes from one emotional state to another.

Arthur F. Jerseld, in his volume on child psychology, points out that, "In his own spontaneous play the pre-school child usually gives only a short time at a stretch to any particular activity. This relative brevity of his attention span will influence his reaction to projects that are assigned by adults, and should be taken into account. As the child grows older he is more likely to concentrate on a single activity for longer periods of time."



Audiogram of median hearing thresholds of eighteen children, eight years of age.

Bott found that the average duration of uninterrupted play on a particular project was 2.5 minutes at the age of two, 4.7 minutes at the age of three and 5.6 minutes at the age of four. Differing considerably from these figures are those of Van Alstyne, who found an average increase of about two minutes with each added year of growth, the average at the age of two being 6.9 minutes. Although these averages are somewhat different at their starting point they do increase in approximately the same ratio in accordance with age increase. It hardly need be pointed out that the difference in averages may be due to difference in the test situation and handling.

Since it was desirable to standardize the technique used in these tests as much as possible, this factor was considered most important. After some experimentation, it was found that in most cases the child of four would listen attentively to from three to four frequencies over a period of from ten to fifteen minutes before his

attention wandered. This increased somewhat with each age group and those of the eight year old group would in most cases listen to the complete range and respond readily. However, children as well as adults vary so greatly as individuals that the time required for a single test ranged from twenty-five to forty-five minutes.

As soon as the child became restless or seemed to be inattentive or uncertain in his responses, the receiver was removed and the testing interrupted until he seemed ready to continue. Throughout the experiment the tests were given in the morning while the children were fresh and much better attention and co-operation was secured than if it had been necessary to carry on the testing later in the day. It is important that the person administering the test be familiar enough with child psychology to judge such matters because otherwise the tests are unreliable indications of their actual hearing threshold.

It was fortunate that the testing could be done in rooms which were somewhat isolated from the remainder of the building and hence were quiet enough so that the child's attention was not distracted.

However, the testing rooms were not sound-proof and this had to be taken into account by making a correction for extraneous noise. In two of the rooms used this was so small as to be negligible, but in the other case it required a correction of five sensation units to make the tests comparable, to those made in a sound-proof room. This amount of correction was determined by making one test with an offset receiver in the room to be used for the testing; and another in a sound-proof room; then finding the difference in the results.

On the audiometer there is a button and light connection which is supposed to be used by the subject to signal to the examiner when he hears the sound and he is instructed to keep the button pressed down as long as he hears it. In testing children, however, this method had to be changed because the greater majority seemed to find more interest in pressing the button than in listening to the sound. It was felt that the best way to minimize the distraction of signaling was to make it as natural as possible.

The following instructions were given them:

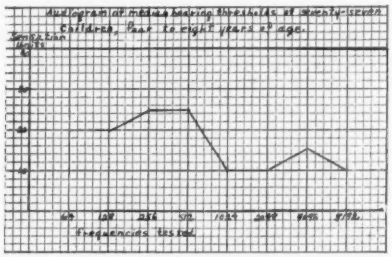
1. "See this. This is a telephone. When you put it on your ear sometimes you can hear whistle. Want to hear? Fine. (Adjust head-set.) Listen. Can you hear the whistle? That's right. Hold up your hand and say "on" the instant you hear the whistle. Drop your hand and say "off" right away when it stops.
2. "Sometimes the whistle is like a train, way, way off. Then you must listen very, very hard. Hear?—on, off, on, off," etc.
3. "Some whistles are different. Hear?—on, off, on, off," etc.

In most cases no further direction was necessary but sometimes a part of it had to be repeated or enlarged upon somewhat. Every

effort was made to have the child understand perfectly what he was to do and to feel no fear or hesitancy about it. It is important that the directions be given in a clear vivacious, child level tone of voice, for if the voice is monotonous or the speech difficult to understand, the child will not follow the explanation.

The test then continued in the same manner as for an adult, beginning with an intermediate frequency and working up to the 8192~ and 64~ frequencies. The intensity was increased for each frequency until the child heard it and then extended ten or fifteen sensation units beyond that point. It was then decreased until he signified that he could no longer hear it. Then the intensity control dial was rotated between these two points until the threshold was determined which was tested by the tone interrupter.

The person administering the test must be very careful in gauging the reaction time of the child so that he is given time to respond before the intensity is changed. This is true also in the testing of adults, but is doubly important in work with children, because their reaction



Audiogram of median hearing thresholds of seventy-seven children, four to eight years of age.

time is ordinarily so much slower than that of a mature individual and if sufficient time is not allowed, the intensity may be decreased five or ten sensation units before the child has signified his response to it as "off." On the other hand, he may hear a frequency at an intensity several degrees fainter than what is registered on the dial when he signifies that he has just heard it.

In giving these tests the procedure used was to turn the intensity control dial over intervals of five sensation units, stopping at each interval long enough to be certain that the child was not going to respond at that intensity of stimulus. The time required for such response varies so with different individuals that it must be left to the clinician to decide what is the minimum for each one. This is not difficult for a well trained, observant person and can be estimated while the child is being familiarized with the test. Since it is some-

what dependent on learning, by the time the results are to be recorded the minimum reaction time has in most cases been reached.

The suggestibility of the child must be considered and every precaution taken to avoid influencing his response in either direction. It is quite possible to say to a child who is listening to any frequency, "you hear that, don't you?" and have him respond "yes"; again, within the minute, if you phrase the question, "you don't hear that, do you," the answer will be "no."

In audiometer testing it is quite as easy to influence the child in less obvious ways. A questioning glance, a word at the wrong time, may have the child's response at that point and materially influence the results. It is difficult to be sure that nothing of this kind has happened if the child is seated where he can look at the examiner. Therefore, the best procedure is to have him placed with his back to the audiometer and the person doing the testing. This also prevents his turning his attention to the operation of the machine.

The ideal environment for the tests is one which is either so familiar to the child that his attention will be directed only to the testing or one in which there are as few new objects about which to ask questions and to arouse interest as possible. The number and diversity of a child's questions is phenomenal. And they must be dealt with in some way which will consume as little time as possible. For speed in such tests is of outstanding importance. It is second only to accuracy—and must be dealt with in some manner which satisfies the child. A little experience in dealing with children shows the importance of using discretion in deciding whether the query is best answered or turned aside, as it may often be, by the substitution of another thought; for the child's attention is easily diverted and this factor may well be used to advantage. Suppose that the child asks, "What makes the noise?" The clinician may answer to the effect that "it comes through the ear-phone from this box; now listen and listen very carefully."

The tests given for the determination of the hearing curve for normal children up to and including those eight years of age were administered to children of the various age groups in the University School, the University Nursery School and the Indianola Elementary School. The administration of the seventy-seven tests used occupied a period of four months beginning February, 1935, all of the testing being done between the hours of nine to twelve A. M. It would have been desirable to retest a large number of each group, but because of the time limitations this was not possible. However, as a check against the original tests, several cases were taken from each group and retested a week or ten days later. Where there was any doubt about the results of the first test, that child was included in those retested. Otherwise the second tests were selected at random. The difference in the first and second tests in practically all cases was so small as to be entirely negligible.

There was very little difference between the thresholds for the right and left ear in any of the tests, and none at all over the entire group. In giving the tests the order in which the ears were tested was alternated, right-left, left-right, so that the learning factor would be balanced in the summation.

Children under and including eight years of age, hear the higher frequencies at a fainter intensity than they do the lower frequencies beginning at 512 double vibrations per second. There is a sharp rise in the curve at this point.

Therefore, in testing for hypacusia in children, we should consider a threshold of twenty-five sensation units at 512, a norm comparable to that of 0 for an adult. The same is true of the other thresholds indicated on the graph as average medians for children.

The audiograms of the median threshold for each age group show little differences for the corresponding age differences. As might be expected, at the seven years old level, the curve lowers somewhat. This is due possibly to their increased powers of concentration.

The difference is noticeable in the drop from an average threshold of twenty-five at 256 double vibrations to twenty at the seven and eight year levels.

We conclude that in the determination of hypacusia in young children, any deviations upward from the average median threshold as shown by the graph on page 10 represents a degree of hypacusia comparable to the same deviation from the zero line in an adult test. Furthermore, that in plotting the hearing of a four to eight year old child on either an Audiogram or the Russell Pedagogically Diagnostic Hearing Graph, the figures shown herein on figures for each respective frequency should be deducted from his test results as corrective factors. So, for example, if such a child's hearing threshold on 512~ tested 35 sensation units, we deduct 25 and hence mark the graph at 10 sensation units.

Summary

1. It is important that we have some accurate means of discovering hypacusia in children before it has seriously retarded their education and as a means of preventing further hearing loss.

2. Although some experimental work has been done on differences in hearing of various age groups, the youngest group ever considered was above nine years.

3. The determination of a hearing curve representation of the average threshold of hearing among children between four and eight for the frequencies of 64, 128, 256, 512, 1024, 2048, 4096 and 8192 double vibrations per second involves the administering of a large enough number of tests to find a median for each frequency.

4. The apparatus used in measuring the hearing in this study is the 2-A audiometer, an instrument developed by the Western Electric Company to measure the hearing and indicate the intensity at which

a sound is heard in terms of sensation units. It is so calibrated that at 0 intensity the average adult should be able to just barely hear each frequency.

5. Among the factors included for consideration in administering audiometer tests to children are the following suggestions for facilitating the testing and obtaining accurate results:

(a) The child's attention span being so much briefer than that of an adult, it is necessary to watch closely to see that he is attending and to interrupt the test when he becomes restless or inattentive.

(b) The room used for testing should be quiet and as conducive to concentration on the test as possible.

(c) Signalling when the tone is heard by raising the hand or responding verbally is preferable to the distraction offered in pushing the button provided for the purpose.

(d) The reaction time of a child, is in most cases, slower than that of an adult and the clinician administering the test should be cognizant of that fact and make allowances for it. At least several seconds should be allowed for each reaction to a tone for a normal child of this age. And proportionately more for those showing apparent losses or mental slowness.

6. From the data secured by seventy-seven audiometric tests on children of four to eight years, graphs were made which show the following:

(a) There is no appreciable difference in the hearing curve (median) between the various four to eight year age groups.

(b) The sharpness of the rise for the median in the distribution curve on each frequency indicates the preponderance of results at that point and the relatively small distribution of the remaining cases.

(c) The resulting median hearing curve shows a rise from 10 sensation units at 8192 double vibrations per second to 15 sensation units at 4096 double vibrations per second and another sharper rise from 10 sensation units at the 2048 and 1024 frequencies to 25 at 512 and 256 double vibrations per second.

7. We may conclude that 2-A audiometer tests of childrens' hearing may be considered practical and valuable in discovering hypacusia and that any variation from the median curve for the age groups from four to eight may be considered in the same relation to it as the same variation from 0 sensation units would be for an adult.

BIBLIOGRAPHY

1. **Antonio, Cioceo.** "Observations on the Hearing of 1980 Individuals: a Biometric Study. *The Laryngoscope*, November, 1932.
2. **Bunch, C. C., Ph.D.,** and **Raiford, T. S., B.S.** "Race, Age and Sex Variations in Auditory Acuity." *Archives of Otolaryngology*, March, 1931; Vol. 13; pp. 423–434.
3. **Crowe, Dr. S. J.** In collaboration with **Stacy R. Guild** and **Walter Hughson.** "Investigations on the Underlying Causes of Deafness." *The Harvey Lectures*, 1931–32.
4. **Guild, Stacy R.** "A Method of Classifying Audiograms." *The Laryngoscope*, November, 1932.
5. **Bunch, C. C., Ph.D.,** and **Grove, R. C., M.D.** "Some Effects in Later Life of Otitis Media in Infancy." *Annals of Otology, Rhinology and Laryngology*, March, 1930.
6. **Bunch, C. C., Ph.D.** "Auditory Acuity After Removal of the Entire Right Cerebral Hemisphere."
7. **Hughson, Walter, M.D.,** and **Crowe, J. S., M.D.** "Function of the Round Window." *Journal of the American Medical Association*, June 13, 1931; Vol. 96.
8. "Report of the Commission Appointed by the American Federation of Organizations for the Hard of Hearing to Study Means of Aiding Hard of Hearing Children in the Public Schools." *Volta Review*, October, 1927.
9. **Newhart, Horace, M.D.** "The Prevention of Deafness." *Volta Review*, October, 1929.
10. "The Progress of Hearing Tests in the Public Schools of the United States." *Volta Review*, January, 1930.
11. "A Survey of Schools for the Deaf." *American Annals of the Deaf*, Vol. 73, 1928.
12. **Fletcher, Harvey.** "*Speech and Hearing.*" D. Van Nostrand Co., Inc., New York. 1929.
13. **Peck, Samuelson** and **Lehman.** "*Ears and the Man.*" F. A. Davis Company. 1926.
14. **Fowler, E. P.,** and **Fletcher, Harvey.** "Three Million Deafened Children, Their Detection and Treatment." *Journal of the American Medical Association*, Vol. 87, 1923, pp. 1877–82.
15. **Goldstein, Max A.** "Functional Tests of Hearing." *Auralism and Oralism*, April, 1924.
16. "Potentialities of Audiometer Testing." *The Laryngoscope*, July, 1925.
17. **Vogt, Alice N.** "Techniques for Use of the 4-A Audiometer with Children." 1931.

The State Board of Education, Commonwealth of Virginia, is initiating a program this year in the State of Virginia, to assist local school boards in making better provision for handicapped children. This includes the installation of speech correction teachers.

Anyone interested in obtaining one of these speech correction teaching positions should forward application and qualifications to Mr. R. N. Anderson, State Supervisor, Richmond, Virginia.

EXAMINATION AND RE-EDUCATION OF APHASICS

SAMUEL D. ROBBINS, A.M.
Emerson College

Before one can understand aphasia, he must comprehend how the normal brain functions in normal speech.

An infant hears many sounds about him which at first have no meaning. He soon learns, however, that certain sounds are associated with or accompanied by certain experiences.

The first transverse convolutions of Herschl of each cerebral hemisphere are the centers for primary perception of sounds; a lesion here makes the patient sound deaf so that he does not hear anything.

Nielsen defines a center as "a cortical area the functional removal of which causes a definite deficiency syndrome which can be recognized clinically."

Wernicke's area in the superior temporal convolution, immediately inferior to the transverse convolution of Herschl, is the center essential for recalling memory pictures of words. A lesion here makes the patient unable to recognize that he has heard a given word before. It must be remembered that the entire brain functions in comprehending the meaning of a word.

The memory of the sound of a given word which the child has heard must be re-experienced in Wernicke's area in the form of a silent inner speaking voice before the average child can say it. His vocal effort is usually guided by an association between these auditory images in Wernicke's area and his speech mechanism which is located in the convolution of Broca in the foot of the third frontal convolution in the dominant hemisphere.

Engrammes are formed in Broca's center by the child's repeated efforts to make the movements necessary for the production of speech sounds. These engrammes are functionally educated structures over which nerve impulses pass much more easily than they did the first time these impulses traveled over the same route.

When an idea formed in Wernicke's area is to be spoken orally, impulses travel from Wernicke's area to all parts of the brain, including Broca's area, where the proper groups of associated cells is stimulated to set the desired engramme into action. Each engramme sends nerve impulses to the proper Betz cells of the motor cortex. These Betz cells relay these nerve impulses to the right cranial nerves to produce the correct movements of the muscles concerned with articulation to cause the desired word to be spoken. A lesion in or

between the Betz cells and the muscles concerned with articulation cause dysarthria, not aphasia.

When the neurones which constitute these engrammes in Broca's area are destroyed, the patient still knows what he wishes to say, but has forgotten how to make the movements necessary to produce the desired words, although he can still move all of these muscles in such automatic acts as chewing, swallowing, coughing, etc.

In normal speech the higher psychic areas supervise what is said: hence the entire brain functions in abstract thinking and in most propositional speech. This is why more or less semantic aphasia is present in all patients who have suffered diffuse lesions.

Although a lesion in Broca's area on the dominant side always causes motor aphasia, cases are on record in which the entire Wernicke's area on the dominant side has been destroyed without the patient's speech being seriously affected. It is probable that the visile initiates ideas with visual imagery and that the motile initiates ideas with kinaesthetic and tactual imagery, just as the audile does with auditory imagery.

It is important to know, therefore, whether the patient was an audile, a visile, or a motile before he became aphasic.

Let me illustrate. Let us suppose that we have three individuals each of whom has a lesion in exactly the same part of his dominant cerebral hemisphere. The first is a visile who is able to comprehend an average novel in two hours merely by skimming it with his eyes and who initiates both writing and speech from visual imagery in the vicinity of the angular gyrus on the dominant side. The second is an audile who is unable to comprehend what he reads until he has translated the printed words into an inner speaking voice, and who initiates both speech and writing from auditory imagery in Wernicke's area on the dominant side. The third is a motile who is unable to comprehend what he hears or reads until he has actually reproduced the mouth moulds of these words himself, and who initiates both speech and writing in the sensory kinaesthetic area located somewhere in the parietal lobes.

Let us assume, first, that a lesion has occurred in Wernicke's area. Although this will not interfere materially with the ability of the visile or of the motile to read, write, and speak, and may not render them unable to understand what is said to them if the white matter beneath Wernicke's area is uninjured, the audile may be unable to understand either printed or spoken words, and may be unable to write or to speak if the lesion includes most of Wernicke's area. He will have to be re-educated to read, write, and speak from visual and kinaesthetic cues. If he is known to have had congenital visual amnesia he must be re-educated through feeling cues entirely.

Let us suppose, in the second case, that the lesion is in the vicinity of the angular gyrus and that the primary visual area in the white matter beneath this is unharmed. Although the audile and the motile may be able to read, write, and speak as of yore, and understand all

that is said to them, the visile is likely to lose his ability to read, write, and speak if the lesion includes most of the area where visual verbal engrammes are stored. The visile must be re-educated to learn to read, write, and speak from auditory, kinaesthetic, and tactual cues. If he has always had very weak auditory imagery, he may have to be re-educated through feeling cues alone, such as braille.

Every educated man or woman should keep with his or her will a written introspective account of the vividness of each type of his or her verbal imagery; a statement as to whether he is a visile, an audile, or a motile, and a note as to whether he is left- or right-handed, or was ever converted from left- to right-handedness. If an unexpected automobile accident causes a fractured skull and aphasia, this information will prove of inestimable value to the person responsible for his re-education.

For a couple of months after an attack of aphasia the patient usually experiences marked spontaneous improvement as the effect of the lesion becomes localized and as the patient learns how to do different tasks in more roundabout, yet adequate, ways.

When this natural recovery begins to slow down, then re-education should begin, but first a careful examination of the patient needs to be made to determine the patient's methods of doing stated tasks, the causes for his failures, and the nature of the responses which he finally makes.

Each test must provide for a satisfactory analysis of the performance being tested; it should be as simple as possible, and should not depend upon types of imagery which are known to be impaired.

Studies of comprehension of written and spoken words should involve responses which are not dependent on the patient's power to speak, and vice-versa.

Bring out the patient's best work by providing conditions suitable for good work such as a quiet room, absence of fatigue or excitement, and comparative comfort. Some patients become more fatigued in ten minutes than others do in an hour.

Permit the patient to rest as soon as he loses interest or his attention begins either to wander or to become fixed on a letter, word, or idea.

Give each test a sufficient number of times to determine the average performance and repeat the same test or a similar one at intervals of a few months to determine the amount of improvement or deterioration.

Tests for Auditory Aphasia

1. Can patient follow simple directions spoken in short sentences? Example: Close your eyes; where is your nose?

2. Ask patient to nod his head when you name a synonym of a given test word. Give the test word first, and say three, four, or five

words, only one of which is a synonym of the test word. Example: test word *pretty*; hungry, afraid, *beautiful*, awful.

3. If patient can speak fairly fluently, ask him to repeat after you a short series of digits, letters, nonsense words, or disconnected words.

4. If patient can speak fairly well, ask him to repeat after you an easy sentence of from 6 to 28 syllables; or ask him to relate in his own words a short story of about 80 words which you have just told him.

5. If patient recognizes pictures, ask him to point to that picture in a set of four pictures which illustrates the word, phrase, or sentence you speak.

Tests for Visual Aphasia

1. Can patient follow short printed or written directions?

2. Can patient select words of a given type, such as things good to eat, from a heterogeneous assortment of printed words?

3. Can patient select given printed letters or numerals from a heterogeneous mixture of these?

4. Ask patient to assort into groups words which begin or end in the same manner from a heterogeneous set of cards, each containing a single printed word.

5. Ask patient to underline the correct synonym for a given word among five possible words.

6. Ask patient which of four pictures represents the word, phrase, or short sentence placed above these pictures.

Tests for Motor Aphasia

1. Can patient speak spontaneously in any language?

2. Make a phonetic transcription of the patient's spontaneous speech; analyze all errors in articulation, verbal confusions, grammatical errors, incoherence, and tendency to repeat. Sound unit substitutions and omissions indicate motor aphasia; grammatical errors more often accompany sensory aphasia.

3. Compare patient's rate of speaking and constancy of rate with that of normal individuals. The rate is slower in motor aphasia and inconstant in amnesic aphasia.

4. Study emotional and reactive speech responses.

5. Test patient's ability to repeat such automatic word series as the names of the days of the week, the months of the year, the letters of the alphabet, and his ability to count, with or without prompting. Time the interval that elapses before the patient initiates the series.

6. Have patient read or repeat words or short sentences which contain all English phonetic units in initial, medial, and final positions and list those sound units which he mispronounces or omits.

7. Can patient repeat correctly short familiar phrases such as "good-bye"?

Tests for Agraphia

1. Can patient write spontaneously with either hand in any language?

2. Get samples of patient's handwriting with both hands and analyze these samples for errors in letter formation, spelling, verbal confusions, grammatical errors, incoherence, tendency to repeat words or letters, etc.

3. Can patient copy single words (a) print in print; (b) script in script; and (c) from print into script? Does he comprehend what he copies? Does he copy letter under letter or in his own handwriting?

4. Can patient copy drawings which resemble symbols when unable to copy these symbols? If so, he tries to read and comprehend the symbols before copying them.

5. Can patient write from dictation? Does he comprehend what he writes?

6. Can patient build words with embossed blocks, each of which carries a single letter?

Tests for Amnesic Aphasia

1. Can patient name familiar objects and pictures? Time his responses.

2. Can patient indicate the functions of objects which he cannot name?

3. Does patient correct inappropriate words in spontaneous speech?

4. Can patient select the right name of a picture from four possible printed or spoken words?

5. Can patient give oral and printed opposites such as "hot-cold"?

6. Can patient supply oral and printed analogies such as "rain is to summer as snow is to ....."?

7. Does patient pass part-whole tests such as "room-door"?

Tests for Semantic Aphasia

1. Can patient comprehend long sentences or complicated statements?

2. Can patient perform mathematical calculations as of yore?

3. Can patient detect oral or printed absurdities in long sentences?

4. Can patient relate in his own words the substance of a short story which he has read or heard? Can he answer questions about this?

5. Can patient follow a triple direction? Can he follow a single direction given in a long, cumbersome sentence?

6. Can patient complete long sentences?

After a thorough examination has revealed what faculties the aphasic has lost, and what faculties still function adequately, it is time to re-educate those faculties which the patient has lost, either by developing the opposite hemisphere of the brain or by teaching the patient how to get an adequate result by using a combination of his remaining faculties in some roundabout manner.

Although it is usually desirable to combine all adequate types of imagery which remain intact to perform a lost function, a single type of imagery sometimes works more efficiently. As each case of aphasia is different, trial and error alone will determine which of the following exercises will prove most helpful. It will be well always to bear in mind the following general rules in re-educating all types of aphasics:

1. Adapt the work to the individual. Connect it with patient's daily experiences.

2. Relate all practice work to interesting performances which patient needs to regain.

3. Keep up patient's morale; encourage him frequently by pointing out the progress he has made. Save samples of his handwriting to show his progress.

4. Use several short daily practice periods; aphasics fatigue quickly.

5. Always address the patient in short sentences composed of single, familiar words.

The following exercises are listed under the various types of aphasia. As most aphasics suffer from a mixture of these types, it will often be necessary to use exercises listed under various headings.

I. Re-education in Sensory or Receptive Aphasia

A. Word-deafness, (Auditory Aphasia)

1. If patient is a young child, assume that you have a deaf and dumb child who expresses himself poorly.

2. Have patient, regardless of his age, practice before a mirror, compare his mouth moulds as seen in this mirror with those made by his teacher, and learn the characteristic feeling of each mouth mould so that he can eventually produce it from feeling cues.

3. Try to strengthen the patient's auditory imagery by speaking simple words very slowly and distinctly behind him where he cannot read your lips.

4. Ask patient to follow a wide variety of simple directions given orally.

5. Ask patient to nod his head when you speak a synonym of a given word. Mix the synonyms with several words which are not synonyms.

6. Ask the patient to repeat short sentences after you.

7. Ask patient to retell in his own words short, simple stories which he is told.

8. If patient can write, ask him to write to dictation.

B. Word-blindness, (Visual Aphasia)

If patient is a young child, assume that you have a blind child who expresses himself poorly; use braille.

If patient is an adult:

1. Ask patient simultaneously to look at the letter of the alphabet which he is trying to learn, hear it pronounced correctly, repeat it, trace its outline with his index finger, and then copy it.

2. Use blocks containing single embossed letters to teach phonetic spelling and division into syllables.

3. Ask patient to select the letter or numeral called by his teacher from a heterogeneous mixture of letters or numerals.

4. Ask patient to pick out the names of things which are good to eat from a hetereogeneous group of assorted cards, each of which contains a single noun.

5. Ask patient to read advertisements and point to articles which he would like to buy.

6. Ask patient to underline which of four printed words is a synonym of a given word.

7. Ask patient to select from four pictures the right one to illustrate printed sentences.

C. Expressive Symptoms in Sensory Aphasia

1. Work on word forms, sentence structure, and grammar.

2. Explain grammatical forms and correct patient's grammatical errors.

3. Ask patient to construct short sentences orally or in writing which contain prescribed single words; later ask patient to put a given noun, verb, and adjective into a single sentence.

II. Re-education in Motor Aphasia

A. Articulatory Aphasia

1. Teach patient the correct mouth moulds for all sounds which he consistently mispronounces. Have him listen while you pronounce the sound five or ten times and observe your mouth moulds. Have him pronounce the sound in unison with you, comparing his mouth mould as seen in a mirror with your own, and learning the characteristic feeling of each mouth mould.

2. Teach patient how to break up words into phonetic units or into syllables, and thus to sound out new words. Patients who were taught to read by the modern flash system cannot do this.

3. After patient has learned how to make a given sound, drill him on short, interesting words which contain this sound and other sounds which he has learned rather than upon nonsense words or impractical words which he will seldom need to use.

4. Confine his vocabulary at first to the first 500 words the average child learns to speak.

5. Copy into a notebook those words which patient mispronounces and review these frequently.

6. Oral reading may prove more beneficial than spontaneous speech at first.

7. If some paralysis is present, teach patient to write with the other hand and to begin to write a word just before he speaks it. (Travis method.)

8. Drill patient upon exercises to improve his control over the muscles of his lips, jaw, tongue and palate.

9. If patient accidentally pronounces a new sound correctly, proceed at once to drill him on this new sound, discontinuing practice on all other sounds temporarily.

10. Insist on spontaneous speech utterance; converse with the patient on subjects which interest him especially.

B. Agraphia

1. Teach patient how to form the individual letters of the alphabet; describe for him the characteristics of hard letters.

2. Guide patient's hand at first as he copies hard letters.

3. Have patient trace large embossed letters with his index finger before he copies them.

4. Ask patient to name each letter as he copies it.

5. Require patient to write sometimes with the other hand even if his writing is normal.

6. Have patient build words with embossed blocks if he cannot write.

7. Have patient copy short sentences with each hand.

8. Have patient write from dictation with each hand.

III. Re-education in Amnesic Aphasia

1. Ask patient to name objects and pictures as you present them.

2. Ask patient to repeat after you several exclamatory words such as "ah," "oh," or other exclamations expressing joy, anger, or some other strong emotion.

3. Each time you name a noun ask patient to look at the object, feel it, and see its name in print or in script.

4. Ask patient to repeat after you such qualifying adjectives as "white," "smooth," as he feels the object and looks at it.

5. Ask patient to repeat after you three word sentences which combine the nouns and adjectives he has learned with familiar verbs.

6. Call the name of a picture and have patient select the correct picture from a group of four to six pictures and repeat its name.

7. Work on vocabulary building; start with the first 500 words learned by the average child in approximately the order in which the child learns these.

8. Record in a notebook those words which patient evokes too slowly; drill upon these words frequently.

9. If patient usually knows the first letter of the words which he forgets, teach him to use a special illustrated dictionary.

10. Have patient define words.

11. Ask patient to construct simple sentences containing a given word.

12. Use part-whole tests such as door is part of a house; panel part of a door.

13. Ask patient to name opposites of oral and printed stimulus words.

14. Ask patient to complete such oral and printed analogies as "heat is to summer as ..... is to winter."

IV. Re-education in Semantic Aphasia

1. Read sentences to patient which are just too long for him to repeat verbatim and ask him to give the essential points orally or in writing.

2. Ask patient to abstract a short story or newspaper account read to him or by him.

3. Ask patient simple questions about a short story read to him or by him.

4. Ask patient to follow single directions given verbosely.

5. Ask patient to follow triple directions.

6. Ask patient to complete long sentences orally or in writing.

7. Ask patient to point out all incongruous words in paragraphs read to him or by him.

Case History

Before the accident which brought on aphasia, patient was a right-handed visile who could skim an average novel in an hour and a half. He memorized poetry either by just looking at it or by copying it.

When 20 years of age patient's skull was fractured just over the Wernicke's area on the dominant side. The injury was so severe, he was not expected to live, hence no operation was performed for several hours. Patient was unconscious for some time.

Patient suffered hemiplegia of the right side; his right foot drags more or less when he walks, and his right hand is useless for anything but the coarser movements. He is unable to write with his right hand.

Right after his accident the patient spoke different words than he thought. There had been sufficient spontaneous improvement before patient came to me for him to express himself fluently, with only a little hesitation for words. There seemed to be very little amnesic aphasia. The patient could pronounce any phonetic unit correctly in

the simpler words, and had trouble only with consonant blends. These gradually improved, until it was possible to understand without effort all that patient said.

The patient learned readily to write with his left hand. His figures were much harder to read than his letters, but he was soon able to perform the duties of bookkeeper satisfactorily. It was awkward for him to take down messages over the telephone because of his awkward right hand, but he learned before long to remember a message until he could write it down at the end of the telephone conversation.

Although the patient could comprehend almost everything that he read, his rate of reading and comprehension was slowed down considerably. When his eye rushed ahead at the former rate he frequently guessed incorrectly at the content. It was necessary to teach him to slow down in reading as in writing and speech. He had lost the enjoyment of reading because he could not read at his former high speed.

When patient becomes excited his ability to read, write, and speak becomes greatly reduced. It was necessary to teach him to relax and to feel unhurried in everything he does, and to sigh a few times to clarify his thinking when he becomes excited.

Although the patient retained an auditory memory span for six digits, which is usually more than ample for normal speech, he mispronounced many consonant blends. His ability to distinguish sounds was evidently impaired by the lesion in Wernicke's area. He was able to understand all that was said to him in short sentences, but evidently missed such details as the enunciation of blends made by two or three adjacent consonants. Final S was the only sound consistently omitted outside of blends.

As patient was a strong visile, he was able to initiate both writing and speaking from visual cues at a slightly reduced rate. He probably did more lip reading than the average adult, which made it possible for him to understand spoken language with the assistance of the Wernicke's area on the non-dominant side.

This case illustrates almost complete recovery in an adult who suffered marked hemiplegia and complete loss of function of the Wernicke area on the dominant side. Although patient had to slow down to half speed, he is able to do well a new kind of work.

METHODS OF TREATMENT FOR SPASTIC SPEECH*†‡

HELEN R. FAGAN, M.A.

The methods of treatment for spastic speech here presented were used in reeducating 9 spastic children (6 males and 3 females) with variable physical and sensory equipment, ranging in age from 3 years, 9 months to 14 years, 5 months, with an I. Q. range of 42 to 98.

Most of the cases studied were spastic complicated by aphasia or by deafness. Therefore, the teacher's responsibility was not to correct speech but to initiate speech on the overt or neuromuscular level and to develop ideas for expression on the symbolic or neuropsychic level.

Psychologically the nervous system develops in the direction of stimuli, but stimuli do not exist except in terms of the nervous system. Therefore, since the damage done to the central nervous system of the subjects was irreparable and hope for rehabilitation was vested in the potentialities of the residues, it was necessary for the teacher to co-operate with allied specialists, namely, neurologists, otologists, and psychologists, as well as with the parents of the subjects in order to form a realistic attitude toward these handicapped children.

Each subject was studied and taught individually at the beginning. The muscle training and speech and language developmental procedure varied in every case. In general, the muscle training procedure in all cases was directed toward complete relaxation followed by coordinating exercises, stretching of strong muscle groups and strengthening of weak muscle groups. The physical exercise periods were followed by occupational theraphy exercises, such as building with blocks, putting wooden rings on a post, putting pegs in a peg board, stringing wooden beads, etc. Exercises directed toward conscious control of the lips and tongue were given. Further training was devised to teach the subjects to receive and reproduce sound impressions by means of the sensory and motor equipment which they had. The impressions were conveyed by means of visual, tactile, and auditory stimuli.

The elementary English sounds were taught individually, starting with the one which was easiest for the child to reproduce or approximately reproduce. As these sounds were developed, they were written in the child's composition book, even when the child was

*From the Department of Corrective Speech of Central Institute for the Deaf, St. Louis, Missouri.

†Read at the meeting of the American Speech Correction Association, Cleveland, Ohio, December 29, 1938.

‡Excerpts from Thesis completed under direction of Dr. Wendell Johnson at the University of Iowa in partial fulfillment of the requirements for Master's Degree.

not over three years old and, therefore, would not be expected to read them. They were put there because the possession of the book gave the child a feeling of personal worth and he could judge his success by his own past record. If a child was developing the sounds slowly, very often a sound which had been written in his book previously was written in the book again so that he would have a feeling of success rather than complete failure. Of course, it was the teacher's responsibility to keep the child stimulated to do his best and to raise the goal when he was physiologically and mentally capable of doing so.

Flash cards were made with the written sounds which the child was learning to produce. The child was required to give the sound from imitation rather than from memory. This was only another device for giving him sound experience and mental development. The same thing was accomplished by requiring him to say the sound as he built blocks, put pegs in a peg board, took a step, or performed some other physical exercise. As soon as he had learned two or three sounds which, when combined, produced a noun, the picture represented by the noun was pasted in his composition book. The first two sounds in the word were written in different colors three times on the opposite page and the name of the noun was written under or beside the picture. Each sound in the word was written in a separate color. If the noun happened to be the word "pie," the second noun taught would be "pipe." When five or six initial consonants were developed and used in naming about twenty objects, the development of the new sounds which were associated with objects was continued and a record kept in the book, but a second book was started in which the pictures of the objects which the subject had studied were pasted without regard to the initial consonant, without syllable drills and writing. The subject was expected to recall the sounds used in naming the objects. Pictures were not pasted in this book unless the teacher was fairly certain that the subject would give and retain the memory of the names of the objects for at least a short interval of time. In one case the first seven initial consonants were: "p," "b," "m," "th," "t," "k," and "g." The first words were pie, pipe, map, bee, baby, thumb, tie, tea, teeth, meat, key, kite, cap, bat, mat, gum, game, gate, and bag. The first pictures in the second book were pie, bee, tea, pipe, kite, map, cat, gate, teeth, baby, meat, comb, thumb, cocoa, boat, cake, pot, feet, coat and toe.

While the first attempts at speech were being made, recognition of objects and simple commands, such as "Laugh," "Stand up," "Throw a ball," "Open your mouth," etc., were taught by auditory impressions (or by lipreading in the case of impaired hearing), as well as recognition of colors and of groups involving numbers through five. During this time speech work was going on simultaneously.

As soon as new sounds were developed which could be used in a noun, the picture represented by the noun was pasted in the book and the above procedure was followed. When the child had been stimulated sufficiently to reproduce the single sounds, we worked for the memory of two sounds and, later, three sounds. The auditory

and visual stimuli were given and the child was required to remember and give back what he heard. The next step was to remember the sounds in the different nouns after he had heard them. Later, he was required to recall them without the aid of auditory or visual stimuli.

When the child could remember and give the sounds in forty to fifty nouns when the pictures were presented without the auditory or visual stimuli, the building of language was begun. Prepositions were taught first. The child was shown two nouns which he could name without any help from the teacher. Let us assume that the nouns were "key" and "cup." The teacher put the key in the cup. Then she asked, "where is the key?" The child said, "Key, cup." The teacher sat down and showed the child that she did not say, "Key, cup," but "Where is the key?" Then she wrote the question on the slate and said again, while pointing to the question, "Where is the key?" On the opposite slate she wrote, "The key is in the cup." Then she touched the key and the cup and said, (pointing first to the key and then to the cup), "The key is in the cup." As soon as the child had a verbal memory of the statement he was taught to ask the question.

This step in the procedure was repeated until the child had mastered it. Then objects were placed in other objects and the child was required to ask the question and give the answer without the aid of the written form. The third person singular was the only tense of the verb which was used at this time and no attempt was made to teach the article or verb. Then pictures were presented and the child was taught to ask the question, "Where is the —?" and was required to give the correct answer. The other prepositions on, under, beside, between, behind, etc., were presented in the same way. The plurals of nouns were taught next with the numbers, as two girls, three tops, four books, etc.

Then pronouns were presented with the present tense of the verb "have." The children and the teacher were given objects. The teacher wrote the questions for them:

	Present Tense *Singular*
What have I?	I have ———.
What have you?	You have ———.

After this form was established the conjugation of the verb was continued in the singular and plural. Next, topics were given about a pupil, the teacher, or an animal, using the pronouns and the verb "have," as:

John has two eyes.	A bird has two feet.
He has two feet.	It has two wings.
He has two legs.	It has one tail.
He has two thumbs, etc.	It has one bill, etc.

Then pictures were used for describing persons, animals, flowers, etc., using relative pronouns. Presentation of pronouns continued

with the present tense of the verb "see." Present progressive tense of verbs follow. While this tense of the verb is being taught, the action must be going on and as soon as the action is completed, both the question and the answer must be erased. Pictures are then presented in which action is going on at the present time, as:

What is ——— doing?	The dog is running.
	The man is shaving.
	The baby is smiling, etc.

Later the pupils went to other classrooms, offices, and outside the building to find out what other teachers, pupils or things were doing.

The following question forms were usually presented and developed in the indicated order:

1. Where is———?
2. What {have / has} ———?
3. What {do / does} ———see?
4. Where are ———?
5. What {am / is / are} ———doing?
6. {Do / Does} ———want———?
7. {Do / Does} ———like———?
8. {Am / Is / Are} ———ing?
9. {Have / Has} ———?
10. How many {have / has} ———?
11. What color {is / are} ———?
12. What {do / does} ———want?
13. What {do / does} ———like?
14. What {is / are} ——covered with?
15. What {is / are} ———made of?
16. Can———?
17. May———?
18. What did———see?
19. What did———do?
20. What {shall / will} ———do?
21. What {do / does} ———want to do?
22. What {do / does} ———like to do?
23. Whose———?
24. Whom———?
25. When———?
26. Why———?
27. {Do / Does} ———want to———?
28. {Do / Does} ———know how to———?
29. {Do / Does} ———like to———?
30. What did———say?
31. What did———tell———?
32. What did——tell——to do?
33. What did—tell—not to do?
34. What did———ask———?

When these question and answer forms were developed, textbook work was begun.

Arithmetical reasoning was taught by emphasizing the thought content of words, rather than using the traditional method. For example, addition was taught with such words as: found, got, and came. Subtraction used such words as: lost, ate, and threw away. The subject learned that when something was found addition was involved; when something was lost, subtraction was involved.

Three of the nine cases studied in this group were deaf, and needed acoustic training and lipreading to supplement the speech and language principles; therefore, the general principles of acoustic training procedure and lipreading procedure as utilized in the education of these deaf subjects are recorded.

Before individual work for the development of residual hearing was begun, an audiometric test and a rotary or caloric test were given to each subject.

The first instruments used in training by the acoustic method were the voice and a Simplex Ear Tube (Dr. Goldstein's). The tube was used to conduct the sound of the teacher's voice or the pupil's voice to both ears simultaneously. When the subject was receiving his first speech impressions by means of the visual and tactile senses, the sound as given by the teacher was directed through the external auditory canals of the subject, also. At first no effort was made on the part of the teacher to require the subject to differentiate between auditory and tactile impressions. The steps given in stimulation by voice followed those outlined in Dr. Goldstein's recent book "The Acoustic Method."

In order not to limit the deaf subjects' intellectual development to what he could hear or say, lipreading exercises and silent reading exercises were given simultaneously from the beginning. Verbs were taught first because the most effective way of learning is by doing, and the subject was placed in a position to indicate definitely whether or not he had grasped the meaning of the spoken or written symbols.

The first command taught was one which was easy for the subject to read on the lips. The second and third commands taught were ones which looked very different from the first command on the lips. If the first three commands chosen were: "Bow, Fall, and Come," the subject was taught to observe that in the first command the lips were approximated at the beginning of the word and rounded slightly at the end of the word; in the second command the lower lip was under the upper front teeth at the beginning of the word and the tip of the tongue was behind the upper front teeth at the end of the word; and in the third command the mouth was open slightly at the beginning of the word and the lips were in approximation at the end of the word.

The lip movements which were used in the commands were associated with the written symbol from the beginning, otherwise as soon as the beginning speech elements were taught, the subject might associate the movements indicated above with such words or nonsense syllables as: pow, mow, bow, fall, fawn, vawl, vawn, come, cup, cub, gum, gup, and gub.

From the above list of words and nonsense syllables, it is clear that some verbs and some nouns, bow and mow, fall and fawn, come and cup, cub and possibly gum, look alike on the lips. Therefore it was imperative very early in the training to differentiate between a verb and a noun. Concrete ways were devised to make clear to the pupil that one group of words expressed an action, (this was the only kind of verb taught at the beginning), and the other group of words named a subject of thought. This differentiation was not so important until the commands became involved, and the subject was expected to make sense out of what he read on the lips. Commands were given in varying degrees of complexity until the subject had mastered some question and answer forms.

When this goal was attained, lipreading was used as an additional instrument in teaching language to these deaf subjects.

Case No. 5, who said a few words at 6, speech unintelligible at 7, is here presented for a practical demonstration of the results obtained in the acquisition of speech and language habits. He was selected not from the standpoint of physical equipment but because of the fact that of the 9 cases studied, 4 of them had an I. Q. level lower than he and 4 had a higher I. Q. level.

Before demonstrating Jack (Case No. 5) I should like to present some data concerning the specific case.

This boy was born in July, 1926. A blue baby; artificial respiration was administered for an hour. On third day began having convulsions with accompanying head jerks which continued frequently for five days but have never recurred.

Has two living brothers, 23 and 19 years of age. Mother had a miscarriage between first and second child. Another child died of infantile paralysis at 3½ years and had never talked.

Subject was able to nurse properly and was breast fed for 3 months, then bottle fed. Teethed at 4 months. Sanitary habits formed at 3 years. Eats and sleeps well.

At 9 months was taken to the family doctor and was given "nerve medicine" for two years. Went to an osteopath twice a week for a year. Prescribed braces to straighten ankles. Mother reported that at three, subject was taken to a brain specialist who decided he had "a scar on the brain." In hospital for observation. No report of tumor. At 8 years began wearing glasses for nearsightedness. Had mumps and chicken pox.

The neurological report as of 1937, made by Dr. Paul Zentay, is as follows:

"Fairly well-developed boy for his age. Mentality apparently somewhat below average. Emotionally fairly stable during examination. Circumference of head 19½ inches. Right extremities not affected; he uses them almost normally. Increase of tonus in the extremities on left side; more in lower than upper extremity. In the left upper extremity there is involuntary movement which is present almost continuously. He tries to control this by holding to some object such as a chair. Can use his left hand in helping what he tries to do with his right, like lacing his shoes. In this process most of the gross part of the work is done by the left, but occasionally puts the shoe lace through the hole. Reflexes in the left upper extremity are not increased. Considerable increase on the left lower. Ankle clonus on the

left and positive Babinski on the left. Gait that of a left-sided hemiplegic with dragging left foot and turning in of left ankle.

"Impression:

"Intracranial birth injury. Spastic hemiplegia on left, combined with hemiathetosis. Lesion rather frontally in this sort of combined disease. Lesions in the pyramidal areas of the parietal lobe and the adjoining areas of the frontal lobe.

"Prognosis:

"Speech development fairly good. Surprising that speech is not better, unless child was originally left-handed."

Walked at 3½, walked around holding on to wall several months before this. Went to a rural school one-half day for two years. No progress in scholarship but social life happier. Fell from chair easily. Could not tie a knot or button well. Attempted almost nothing with the left hand. Drools some.

This subject was enrolled in the Corrective Speech Department of Central Institute for the Deaf on October 22, 1935. During the school term of 1935–36 he was absent 28 days. During the school term 1936–37 he was present all but 6½ days. Last year his attendance was regular.

Physical exercises for control of left side were given, as well as tongue and lip exercises. Development of consonants and vowels was started and when this subject learned enough consonants and vowels to begin combining them into words, it was observed that this subject needed special attention directed toward calling an object by its right name. He learned to say the sounds, which when combined, produced the name of an object, but when a new object was presented and he learned the sounds designating that object, he called the second object by the name of the first object. This confusion in the name of objects persisted for some time, but a continued attempt was made to teach him to associate the right name of the object with the object.

When this subject was able to call an object by its right name, the development of language began. Exercises in writing were given.

The adjustment of being away from his mother, who did everything for him was very difficult to make. He was happier because he is better able to help himself.

His memory for words which have been taught is good. His memory for new words which he hears, but which have not been definitely taught in the classroom, is improving daily. He is eager to give original sentences. He tells of incidents and experiences which have happened and very often can communicate his thought in an intelligible way. Last spring he scored second grade on the Stanford Achievement test and his I. Q. as of December, 1938, was 54.

Demonstration of his ability to formulate questions and answers and reading was given.

The methods should be directed toward helping the child get outside himself, to enlarge his sphere of being, to develop his potencies, and to make him other than he was.

FORMAL DISCUSSION ON SPASTIC SPEECH

SAMUEL D. ROBBINS,
Emerson College

It is important to bear in mind, as the speaker brought out, that spastic speech is often accompanied by aphasia. For the benefit of those who are not familiar with spastic speech and with aphasia, I should point out that all of the cases presented had both marked spasticity and marked aphasia.

The speaker did not bring out so clearly the fact that spastic speech is usually accompanied by a decided lack of emotional control—often by psychoneuroses or even by psychoses.

When re-educating the speech of spastics I begin, as Miss Fagan does, with relaxation exercises and muscle training exercises, starting with the coarser muscles and proceeding gradually to the finer muscles such as those used in writing and in speech.

When the spastic child has acquired sufficient control over the muscles used in articulation to make the correct mouth moulds for all sounds of conventional speech, I teach him how to shape those phonetic units which he formerly made incorrectly or omitted. I emphasize the fact that he must never hurry, because it will always take him much longer to form these moulds than it takes a normal child who is not spastic. I urge him to exert as little effort as possible, and to be careful not to use any muscles which are not needed. I ask him to keep his eyes on my necktie so that he will not throw his head to one side in his attempts to speak, and have him look in a mirror frequently to make sure he is not making unnecessary grimaces with his facial muscles during speech.

After the spastic child has developed fair co-ordination over the muscles employed in articulation and learned the mouth moulds, I give him the same treatment which I give to stutterers.

I teach him to breathe calmly and to start the first syllable in each sentence with a loud sigh. I teach him to accent important words and syllables by prolonging their accented vowels rather than by forcing them in a high-pitched voice. I encourage him to touch unaccented words and syllables very lightly and quickly. I request him to speak in a quiet, low-pitched voice.

Meanwhile, I try, through modern mental hygiene methods, to help him to acquire better control over his emotions. I ask him to fill out a long questionnaire which shows me many of the unhealthy attitudes which he has developed; then I help him to change these attitudes into normal, healthy attitudes. In this way it is possible to overcome much of that emotional tension which increases spasticity and aggravates the speech defect.

PERSONALITY TRAITS AND VOICE QUALITY DEFICIENCIES

WILBUR E. MOORE, Ph.D.
Kent State University,
Kent, Ohio

I. A number of studies have indicated rather definite relations between personality traits and general effectiveness in speech.
   A. Dr. Elwood Murray and his students have contributed much to the interest in and understanding of personality traits and speech skills.
      1. Murray found best student speakers tended to be dominant, self sufficient and extrovertive.
      2. Tracy found that mature public speakers were more extrovertive, dominant, and self sufficient than were mature actors.
   B. Dr. Bryngelson has repeatedly shown the necessity and efficacy of understanding the students personality traits in the fundamental speech course as well as in the speech clinic.

II. This report, which unfortunately is not complete, is a small part of a study carried over a period of three years and covering four hundred and fifty-three students in the first year speech courses at Colorado State College and Kent State University.
   A. All students in my fundamentals classes at those two colleges were given the Bernreuter Personality Inventory.
      1. Likewise, each student, twice during a semester rated himself on a speech personality rating sheet, and was rated by ten advanced speech students immediately following a performance.
   B. In the administration of the courses, students who were deficient in (1) articulation, (2) phonation, or (3) adjustment to the audience were given individual attention.
      1. Of those who were deficient in phonation 119 (28.4%) had voices which clearly could be classified as follows:

Breathy	32
Nasal Whine	29
Harsh	28
Metallic	30

      2. At least two persons trained in speech and working independently agreed in the classification of each voice.

3. There were, of course, other types of defects in the group of 453, but a report on them is not yet complete.
4. In this study, randomly selected records for 43 students with superior speaking voices were used for purposes of comparison.

III. Results.

A. The average percentile scores for the five groups, as given in Table I indicate that the speaker with a breathy voice is likely to be high in Neurotic Tendencies and Introversion

TABLE I

AVERAGE PERCENTILE SCORES IN NEUROTIC TENDENCIES AND DOMINANCE

	B1N	B4D N
Breathy	81.01	20.3—32
Whiny	80.3	27.3—29
Harsh	45.	65.8—28
Metallic	44.5	73.2—30
Superior	53.1	50.2—43

TABLE II

COMPARISON OF AVERAGE PERCENTILE SCORES IN NEUROTIC TENDENCIES

	CR	Chances in 100
Breathy vs. Metallic	2.9	99
Breathy vs. Harsh	2.8	99
Breathy vs. Superior	2.2	98
Whiny vs. Metallic	2.8	99
Whiny vs. Harsh	2.7	99
Whiny vs. Superior	2.1	98

(Bernreuter gives a correlation of .96 between the two) and low in dominance. The lowest percentile score in the breathy group was 31, and it was the only one below 60. Only six of the 32 were below the 70 percentile. Likewise, the speaker with a nasal whine is probably emotionally unstable and low in dominance although somewhat more dominant than the breathy speaker. On the basis of average percentile scores, the harsh and metallic voiced speakers, on the other hand tend to be dominant and more emotionally stable. It is worth noting that Murray found the average percentile score in Introversion to be 83 for generally poor speakers and 50 for generally superior speakers, and the percentile scores in dominance to be 15 for the poor speakers, and 86 for the good. The chances that the difference in dominance and neurotic tendencies between the whiny and breathy voiced speakers on the one hand and the harsh, metallic and superior voiced speakers on the other, is a real one, are indicated in Tables II and III.

Table IV gives some indication of the consistency of trend in the scores in showing the per cent of subjects in each group which had a higher or lower score than the average for the group.

TABLE III

COMPARISON OF AVERAGE PERCENTILE SCORES IN DOMINANCE

	CR	Chances in 100
Breathy vs. Metallic	3.2	100
Breathy vs. Harsh	3.1	100
Breathy vs. Superior	1.9	97
Whiny vs. Metallic	2.9	99
Whiny vs. Harsh	2.8	99
Whiny vs. Superior	1.6	94

TABLE IV

PER CENT OF SUBJECTS ABOVE/BELOW AVERAGE PERCENTILE SCORES

		AM	Per Cent
Breathy	Above	81.	63.6
	Below	20.3	63.6
Whiny	Above	80.3	62.
	Below	27.3	65.4
Harsh	Below	45.	50.
	Above	65.	50.
Metallic	Below	44.5	70.
	Above	73.2	60.
Superior	Above	53.1	50.
	Below	50.2	70.

B. The evidence from the Bernreuter Inventories that the whiny and breathy voiced speakers differ in personality from the harsh and metallic voiced speakers is substantiated by a comparison of ratings on speech performance. It may be assumed that if a student speaker rates himself on a number of items exactly as ten critics do, he possesses mental objectivity in viewing his own behavior. If on the other hand he rated himself higher or lower, he has an exalted or humbled opinion of himself.

On the basis, both of number of items rated and of total score on two different rating sheets, 88% breathy voiced scored themselves lower than the critics, while 78% and 84% of the harsh and metallic voices respectively scored themselves considerably higher than their critics.

C. A third bit of evidence tends to indicate a relationship between personality traits and deficiencies in voice quality.

The speakers in each group gave three performances before two critics trained in speech and were scored from 1 to 7 on voice quality, a low score indicating a more marked deficiency than a high one. The totals for each of the two similar classes, that is the total scores for the breathy and whiny voices combined and the total scores for the harsh and metallic voices combined were correlated with the scores on the Bernreuter Inventory. The correlations for the first two classes were —.78 on Neurotic Tendencies and +.44 for dominance. In other words, the trait which appeared in excess had a negative correlation, while that which was diminished had a positive correlation. The correlations for the harsh and metallic groups were too small to be meaningful, being plus .10 and plus .03 respectively for Neutroic Tendencies and Total scores and Dominance and total scores.

TABLE V

COMPARISON OF SELF-RATINGS AND AVERAGE RATING BY TEN ADVANCED STUDENTS

Breathy	—88% rated selves below average of critics.
Whiny	—67% rated selves above average of critics.
Metallic	—84% rated selves above average of critics.
Harsh	—78% rated selves above average of critics.

IV. Conclusions.

Three conclusions may be drawn from this study, although it is admittedly incomplete.

First—A possible relation between certain types of voice quality deficiencies and personality traits may be found to exist.

Second—If there is a relationship, remedial procedures based on breathing exercises and drills may be futile or even harmful until the subject is given insight into his behavior and learns to make satisfactory adjustments.

Third—Since the subjects in this study were drawn from beginning speech classes in two representative, small institutions, the need for all teachers of the basic course to be trained in speech re-education techniques is evident. The need is the greater in those institutions which do not have a speech or psychological clinic.

American Speech Correction Association

Membership List
1939

AMERICAN SPEECH CORRECTION ASSOCIATION

The American Speech Correction Association was organized in New York City in December, 1925, at the annual convention of the National Association of Teachers of Speech with which this organization has always been affiliated. Its original name, the American Academy of Speech Correction, was changed to the American Society for the Study of Disorders of Speech in 1927, and the present name was acquired in December, 1934.

The purposes of the American Speech Correction Association as set forth in its Constitution are:

1. To stimulate among educators, physicians, and others of the general public a deeper, more intelligent interest in problems of speech correction.
2. To raise as rapidly as possible existing standards of practice among workers in the field of speech correction.
3. To secure public recognition of the practice of speech correction as an organized *profession*.
4. To furnish this new profession with responsible and authoritative leadership.
5. To make this leadership generally respected by our good works, i. e., by our scholarly research work, publicity work, and administrative skill.
6. To make membership in our organization a coveted recognition of merit and in this way to furnish workers in the field of speech correction with a powerful incentive to greater achievements.

The Association is composed of Associates and Fellows. Any reputable speech correctionist with a college education or its equivalent is eligible for election as an Associate.

A Fellow is usually a pioneer or leader in the field of speech correction who has done eminent research work in speech correction and obtained the doctor's degree.

OFFICERS OF THE ASSOCIATION

President.....SARA STINCHFIELD HAWK, PH. D.
Vice-President.....CLARENCE T. SIMON, PH. D.
Permanent Secretary.....SAMUEL D. ROBBINS, A. M.
Treasurer.....BRYNG BRYNGELSON, PH. D.
Editor.....G. OSCAR RUSSELL, PH. D.
Director of Information.....JAMES F. BENDER, A. M.

Other Councillors

CHARLES S. BLUEMEL, M. D.....1937–40
MAX A. GOLDSTEIN, M. D.....1937–40
CLAUDE E. KANTNER, PH. D.....1939–42

STANDING COMMITTEES

Committee on Education

LEE EDWARD TRAVIS, PH. D., Chairman.....1937–40
SMILEY BLANTON, M. D.....1937–40
G. OSCAR RUSSELL, PH. D.....1937–40
MACK D. STEER, PH. D.....1939–42
JANE BLISS TAYLOR, A. M.....1939–42

Nomenclature Committee

SAMUEL D. ROBBINS, A. M., Chairman
SARA STINCHFIELD HAWK, PH. D. G. OSCAR RUSSELL, PH. D.

Program Committee

HERBERT KOEPP-BAKER, PH. D., Chairman
D. W. MORRIS, PH. D. CLARENCE T. SIMON, PH. D.

LIST OF OFFICERS AND PLACES OF ANNUAL MEETING

Year	*Place of Meeting*	*President*	*Secretary*	*Members of Council**
1925 1926	New York City Chicago	West	Stinchfield	
1927 1928	Cincinnati Chicago	West	Stinchfield	Travis, Borden
1929 1930	New York City Chicago	Kenyon	Stinchfield	Robbins, Busse
1931 1932	Detroit St. Louis	Kenyon	Robbins	Gifford, Bryngelson Blanton, West Ward, Goldstein
1933 1934	New York City Chicago	Blanton	Robbins	Travis, Bryngelson Hawk, Kenyon Goldstein, Gifford
1935 1936	Chicago St. Louis	Travis	Robbins	Solomon, Bryngelson Hawk, Blanton Bender, Gifford
1937 1938	Chicago Cleveland	Goldstein	Robbins	Hawk, Bryngelson Russell, Travis Bender, Bluemel

*The Council was not created until December, 1930. It includes in addition to the President and Secretary the Vice-President, Treasurer, Editor, the most recent Ex-President, and two other Fellows; these are listed in the order here named.

ALPHABETICAL LIST OF MEMBERS

The following alphabetical list of members of the Association gives the title, degree, professional rank, and address of every Fellow and Associate whose 1939 membership dues were paid on February 1, 1939, in accordance with Section 4 of Article III of the Constitution as amended at the 1938 Cleveland Convention. This is not a complete list of members.

NOTE.—In the following list the names of the Associates are indicated by (A) and the names of Fellows are indicated by (F).

Most of the abbreviations used are standard and self-explanatory. The less obvious ones are as follows: correction—cor., improvement—imp., teacher—T.

Teachers teach in the city where their address is listed unless otherwise noted.

In listing institutions which have granted degrees, all state universities have been designated simply by the abbreviation of the state.

(A) AINSWORTH, STANLEY H., A.B. (Mich. State Nor.) 1933, A.M. (Iowa) 1937. T. in Redford Township Jr. High Sch. 18424 Winston, Detroit, Mich.

(A) AMIDON, HILDA FARNUM, (Mrs.), S.B. in Ed. (N. Y. Univ.) 1935. Pub. Sch. T. of Speech Cor. 282A Sigourney St., Hartford, Conn.

(A) ANDERSON, DOROTHY IOLA, A.B. (Iowa) 1928, A.M. (ibid) 1931. Instr. in Speech, Univ. of Ill. 603 W. Green St., Urbana, Ill.

(A) ANDERSON, MARGARET LOUISE, A.B. (Knox) 1917, A.M. (Univ. Kans.) 1925. Asst. Prof. of Speech, Univ. of Kans. 1126 Louisiana St., Lawrence, Kans.

(A) AREY, MABEL-LOUISE, B.L.I. (Emerson) 1926, A.M. (Pa. State) 1937. Clinician of Remedial Reading at Dr. S. T. Orton's Clin. Barbizon-Plaza Hotel, West 58th St., N. Y. City.

(A) ARNOLD, GENEVIEVE, A.B. (Minn.) 1934, A.M. (ibid) 1936. Pub. Sch. T. of Speech Cor. 607 W. Maple St., Austin, Minn.

(A) ATHERTON, GRACE WILLIAMS (Mrs.) In charge of Speech Cor., Washington, D. C., Pub. Sch.; Dir. of Speech Cor. Clinics, Wilson T. Coll. and Episcopal Eye, Ear and Throat Hosp., Washington. 9300 Conn. Ave., Chevy Chase, Md.

(A) AUSTIN, PAULINE SHEPPARD (Mrs.), A.B. (Iowa) 1930, A.M. (ibid) 1935. T. of Speech Cor., Wauwatosa, Wis. 754 N. 12th St., Milwaukee, Wis.

(A) BACKUS, OLLIE L., A.B. (Mich.) 1929, A.M. (ibid) 1930, Ph. D. (Wis.) 1933. Chairman, Dept. of Speech, State T. Coll., Slippery Rock, Pa.

(A) BAKER, MAE HANNAH, B.L.I. (Emerson) 1921, A.B. (Keuka) 1927, A.M. (Columbia) 1928. Prof. of Speech and Drama and Speech Pathology, Keuka Coll., Keuka Pk., N. Y.

(A) BAKES, FRANK P., A.B. (Ohio State) 1924, A.M. (ibid) 1927, Ph.D. (Iowa) 1938. Psychol., Ohio Bureau of Juvenile Research. 2280 W. Broad St., Columbus, Ohio.

(A) BALL, MARIE AGNES, S.B. (Univ. Rochester) 1929, A.M. (ibid) 1932. Instr. in Speech, Ext. Div., Univ. of Rochester; Pub. Sch. Speech Specialist. 145 Seneca Pkwy., Rochester, N. Y.

(A) BELL, ALTA REBECCA, A.B. (Ohio Wesleyan) 1918, A.M. (T. Coll., Columbia) 1927. Pub. Sch. T. of Speech Cor., 720 Bierman St., York, Pa.

(F) BENDER, JAMES F., S.B. (Columbia) 1928, A.M. (Columbia) 1929, C.P. (N.Y.S.) 1931. Asst. Prof. of Speech, Queens Coll., 65-30 Kissena Blvd., Flushing, N. Y.

(A) BERRY, MILDRED FREBURG (Mrs.) A.B. (Iowa) 1922, A.M. (ibid) 1925, Ph.D. (Wis.) 1937. Prof. of Speech, Rockford Coll., Rockford, Ill.

(A) BERWICK, NAOMI HUNT (Mrs.), A.B. (Hardin-Simmons) 1929, A.M. (Iowa) 1939. Private Studio of Speech Cor., 2903 Welborn, Dallas, Texas.

(A) BISHOP, JEANNE H., A.B. (Rockford) 1935, A.M. (Columbia) 1936. Pub. Sch. T. of Speech Cor. 1032 Second Ave., S., Minneapolis, Minn.

(A) BISSELL, VELMA L., S.B. (Northwestern) 1926, A.M. (Iowa) 1938. Dir. of Speech Clin., Grinnell Coll., 920 High St., Grinnell, Iowa.

(A) BLANCHARD, DOROTHY LUCILE (Mrs. Thad A.). Pub. Sch. T. of Speech Cor. 312 Avalon Ave., Detroit, Mich.

(A) BLANCHETTE, ALVENA M., S.B. (Minn.) 1926. Pub. Sch. T. of Speech Cor. The Leomington, Minneapolis, Minn.

(F) BLANTON, SMILEY, S.B. (Vanderbilt) 1904, M.D. (Cornell) 1914. Diploma in Psychol. Med. (Royal Coll. of Phys. and Surgeons of London and England) 1923. Consultant in Psychiatry, Marble Collegiate Church, N. Y. City. 115 E. 61st St., New York City.

(A) BLOOMER, HENRY HARLAN, A.B. (Ill.) 1930, A.M. (Mich.) 1933, Ph. D. (ibid) 1935. Manager of Speech Clin. and Asst. Prof. of Speech, Univ. of Mich., Ann Arbor, Mich.

(F) BLUEMEL, CHARLES SIDNEY, A.M. (Colo.) 1915, M.D. (ibid) 1916, M.R.C.S. (England) 1917, F.A.C.P. 1931. Physician, 550 Metropolitan Bldg., Denver, Colo.

(A) BRACKETT, ISAAC PARSONS, S.B. (Northwestern) 1938. Asst. in Training of the Speaking Voice and Clin., Northwestern Univ. Sch. of Speech, Evanston, Ill.

(A) BRIGHAM, FLEDA MARGARET, A.B. (Occidental Coll.) 1930, A.M. (S. Calif.) 1936, D.O. (L. A. Coll. Osteopathic Physicians and Surgeons) 1936. Research worker in speech cor., L. A. Coll. Osteopathic Physicians and Surgeons, Los Angeles; speech cor., private practice at 1711 Monterey Rd., S. Pasadena, Calif.

(A) BRONSTEIN, ARTHUR JORDAN, A.B. (Coll. City N.Y.) 1934, A.M. (Columbia) 1936. Tutor, Dept. of Speech, Queens Coll., Flushing, N. Y. 46 Ft. Washington Ave., New York City.

(F) BROWN, FREDERICK WARNER, Ph.B. (Heidelberg) 1914, A.M. (Princeton) 1917. Dir. of Guidance Dept. and Speech Clin., Sewanhaka High Sch., Floral Pk., N.Y. 69 Cambridge Ave., Garden City, N. Y.

(A) BROWN, HELEN, S.B. (Boston Univ.) 1923, A.M. (Pittsburgh) 1929. Assoc. Prof. of Speech, Hampton Inst., Hampton, Va.

(F) BROWN, SPENCER F., A.B. (Shurtleff) 1933, A.M. (Iowa) 1935, Ph.D. (ibid) 1937. Asst. Dir. of Speech Clin., Univ. of Minn., Minneapolis, Minn.

(F) BRYNGELSON, BRYNG, A.B. (Carleton) 1916, A.M. (Iowa) 1926, Ph.D. (ibid) 1931. Dir. of Speech Clin. and Assoc. Prof. of Speech, Speech Clin., Univ. of Minn., Minneapolis, Minn.

(A) BUCHHOLZ, CLARENCE ARTHUR, A.B. (Baldwin-Wallace) 1923, BD. (Drew Univ.)1925, A.M. (T. Coll., Columbia) 1928. Instr. in Speech Pathol., Fenn Coll., Cleveland, Ohio.

(A) BURNETT, BONNIE MAY HEATH (Mrs.), A.B. (Univ. Wash.) 1935. Assoc. in Speech Cor. and Lip Reading, Div. of Speech, Univ. of Wash., Seattle, Wash.

(F) BUSSE, ALVIN CLAYTON, A.B. (Macalester) 1920, A.M. (N.Y. Univ.) 1924. Assoc. Prof. of Speech, N. Y. Univ., University Hts., New York City.

(A) CABLE, W. ARTHUR, Ph.B. (Univ. Chicago) 1920, A.B. (Manchester Coll.) 1920, A.M. (Iowa) 1925. Dir. of Speech Clin. and Prof. of Speech, Univ. of Arizona. 524 E. Fourth St., Tucson, Ariz.

(A) CALVERT, RAYMOND R., M.D. (Ind.) 1927. Physician to Purdue Speech Clin., 334 Main St., Lafayette, Ind.

(F) CAMP, PAULINE BEATRICE, Pub. Sch. Dir. of Child Guidance and Special Educ., 229 Clifford Ct., Madison, Wis.

(A) CARHART, RAYMOND THEODORE, A.B. (Dakota Wesleyan) 1932, A.M. (Northwestern Univ.) 1934, Ph.D. (ibid) 1936, Instr. of Speech Re-educ., School of Speech, Northwestern Univ., Evanston, Ill.

(F) CARLSON, EARL REINHOLD, A.B. (Minn.) 1921, S.M. (ibid) 1922, M.D. (Yale) 1931. Dir. Dept. of Rehabilitation of Motor Disorders, N. Y. Neurological Inst.; Dir., Sch. for Corrective Motor Educ., E. Hampton, N. Y., and Pompano, Fla. Lago del Mare, E. Hampton, L. I., New York.

(F) CARR, ANNA M., A.B. (Cornell) 1904, A.M. (Iowa) 1926. Dir. of Speech Clin. and T. of Speech, State Teachers' Coll., Milwaukee, Wis.

(A) CASEBOLT, JESSIE D., A.B. (S. F. State Coll.) 1935. Asst. Prof. of Speech, Drama, and Speech Imp., S. F. State Coll. 671 The Alameda, Berkeley, Calif.

(A) CASEY, MARY HELENA, B.L.I. (Emerson) 1925. Pub. Sch. T. of Oral Reading. 46 June St., Lowell, Mass.

(A) CASS, MARION THERESSA, A.B. (Univ. Nebraska) 1927, A.M. (T. Coll., Columbia) 1932. Sup. of Speech, Glen Cove High Sch. 56 Franklin Ave., Glen Cove, N.Y.

(A) CHAPMAN, MYFANWY ELIZABETH (Mrs. Kirt M. Chapman), S.B. (Minn.) 1937. Pub. Sch. T. of Speech Cor. 5344 Ewing Ave., S., Minneapolis, Minn.

(A) CLANCY, JOHN N., Ph.B. (Univ. Notre Dame) 1921, A.M. (Mich.) 1937. Dir., Shady Trails Nat. Speech Imp. Camp.; Clinician, Univ. of Mich. Speech Clin., Ann Arbor, Mich.

(A) CLARK, RUTH MILLBURN, (Mrs.), A.B. (Univ. Utah) 1921, A.M. (ibid) 1935. Pub. Sch. T. of Speech Cor. 227 S. 13 East, Salt Lake City, Utah.

(F) COTTON, JACK CHILTON, A.B. (Maryville) 1929, M.Sc. (Ohio State) 1930, Ph.D. (ibid) 1936. Dir. Speech Clin. Laboratories, Western Wash. Coll. of Educ. 1537 James St., Bellingham, Wash.

(A) CREWS, LOIS MCSLOY (Mrs. A. R. Crews), S.B. (Northwestern) 1929, S.M. (ibid) 1932. Instr. in Training of the Speaking Voice and Speech Re-educ., Northwestern Univ. 1935½ Orrington Ave., Evanston, Ill.

(A) DAVIES, NELLIE ELEANOR, Ph.B. (Wis.) 1931. Pub. Sch. T. of Speech Cor. 33½ Park St., Oshkosh, Wis.

(A) DAVIS, DOROTHY MAY, A.B. (Mich.) 1933, A..M (Iowa) 1936, Ph.D. (ibid) 1939. Clinician in charge of articulatory disorders, Speech Clin., Univ. of Iowa, Iowa City, Iowa.

(A) DAVISON, LOUISE DAVIS (Mrs. W. W. Davison), A.B. (Worthen) 1907. Co-Dir., Jr. League Sch. for Speech Cor.; Private Sch., 1780 N. Decatur Rd., Atlanta, Ga.

(A) DIEMER, MARY G., S.B. (Drake Univ.) 1930. Speech Therapist, Pub. Sch. P. O. Box 534, Des Moines, Iowa.

(A) DOURIS, ELIZABETH FOOTE, (Mrs.), A.B. (Hunter) 1913, A.M. (Fordham) 1920. T. of Speech, Newton High Sch. Fifth Ave. Hotel, 24 Fifth Ave., New York City.

(A) DOW, CLYDE WALTON, B.L.I. (Emerson) 1931, S.M. (Mass. State Coll.) 1937. Instr. in Pub. Speaking, Mass. State Coll. 116 Montague Rd., N. Amherst, Mass.

(A) DUKE, DARLENE, A.B. (Iowa) 1930, A.M. (ibid) 1935. Pub. Sch. T. of Speech Cor. 4725 Northcote Ave., E. Chicago, Ind.

(A) DUNN, MARGUERITE LOUISE (Mrs.), S.B. (Fordham Univ.) 1938. Pub. Sch. T. of Speech Cor. 100 Bellevue Pl., Yonkers, N. Y.

(A) ELLENBERGER, MARTHA V., A.B. (Pittsburgh) 1925, A.M. (ibid) 1933. Pub. Sch. T. of Speech Cor., 551 Cypress Ave., Johnstown, Pa.

(A) ELLIOTT, LUCY C. Raleigh Apts., 3664 Washington St., St. Louis, Mo.

(F) EVANS, MARSEE FRED, A.B. (Cornell Coll.) 1915, A.M. (ibid) 1917, B.D. (Drew) 1924, Ph.D. (Iowa) 1932. Prof. of Speech, Birmingham-Southern Coll., 1521 Eighth Ave., W., Birmingham, Ala.

(F) FAGAN, HELEN ROSE, S.B. (Washington Univ.) 1933, A.M. (Iowa) 1937. Asst. Dir. of Speech Clin., Central Inst. for the Deaf and Washington Univ. Coll. 818 S. Kingshighway, St. Louis, Mo.

(F) FAGAN, LEO BERNARD, A.B. (Creighton) 1925, A.M. (Iowa) 1927, Ph.D. (ibid) 1929. Psychologist and Speech Pathologist, St. Louis Psychiatric Child Guidance Clin. and Assoc. Prof. of Educ. Psychol., St. Louis Univ. 15 N. Grand Blvd., St. Louis, Mo.

(A) FAISON, MARTHA H., S.B. (T. Coll., Columbia) 1919, A.M. (ibid) 1920. T. of Speech, Lochland Sch., Geneva, N.Y.

(A) FARRELL, ELEANOR AGNES, S.B. (N. Y. State T. Coll.) 1934. Pub. Sch. Sup. of Speech Imp.; Instr. of Speech Pathol., Extension Div., Coll. City N. Y. Hotel Chelsea, W. 23rd St., New York City.

(A) FINGER, VERNA, S.B. (Northwestern Univ.) 1931, S.M. (ibid) 1932. Instr. of Speech Re-educ., Northwestern Univ. 1940 Sherman Ave., Evanston, Ill.

(A) FISHEL, MAMIE VAUGHN, S.B. (Meridian) 1913, Ph.M. (Wis.) 1935. Pub. Sch. Sup. of Speech Cor. 16 Marshall Pl., Janesville, Wis.

(F) FITZ-GIBBON, JOHN J., F.A.C.D. (Am. Coll. of Dentists) 1928. Chief of Dental Staff, Skinner Memorial Clin., Holyoke Hosp.; Consultant and Palate Prosthetist, Joseph Samuels Dental Clin., R. I. Hosp. Private Practice, 56 Suffolk St., Holyoke, Mass.

(A) GAINES, FRANCES PERLOWSKI (Mrs.), A.B. (Wis.) 1926, S.S.M. (Smith) 1927. Dir. of Speech Clin., Children's Memorial Hosp., Chicago, and Rush Medical Coll., Chicago. 548 Fullerton Pkwy., Chicago, Ill.

(F) GARDNER, WARREN HENRY, A.B. (Harvard) 1918, Ph.D. (Iowa) 1936. Hearing Examiner, Speech and Hearing Clin., Indiana Univ., Bloomington, Ind.

(A) GARRISON, E. GERALDINE, A.B. (Okla. Central) 1925, A.M. (Columbia) 1938. High Sch. Speech T. 917 N. 8th St., Neodesha, Kansas.

(A) GAVIN, MARGARET LUCY. Special Pub. Sch. T. of Speech Imp.; Dir. of Speech Clin. and Lect. on Speech Pathol., Hunter Coll. 147 E. 50th St., New York City.

(A) GEESON, EDNA LABUHN (Mrs. Edward Geeson), S.B. (Wayne) 1928, A.M. (ibid) 1933. T. Speech Imp., Cass High Sch. 420 Navahoe Ave., Detroit, Mich.

(F) GIFFORD, MABEL FARRINGTON (Mrs.) Chief, Bureau of Cor. of Speech Defects, Calif. State Dept. of Educ.; Dir. of Speech Clin. and Instr. in Speech Cor., Univ. of Calif. and San Francisco State T. Coll. 609 Sutter St., San Francisco, Calif.

(A) GILMAN, WILBUR ELWYN, A.B. (Cornell) 1923, Ph.D. (ibid) 1937. Assoc. Prof. of English, Univ. of Mo. 404 S. Williams St., Columbia, Mo.

(A) GLASNER, PHILIP J., B.C.S. (Baltimore Coll. of Commerce) 1932. Speech Correctionist, Johns Hopkins Hosp. Psychiatric Clin.; Dir. of Private Clin., 740 Reservoir St., Baltimore, Md.

(A) GLASPEY, ESTHER, A.B. (Iowa) 1932, A.M. (ibid) 1933. Pub. Sch. Dir. of Speech Cor., Central Sch., Rochester, Minn.

(A) GLAUBER, ISRAEL PETER, M.D. (Univ. and Bellevue Hosp. Med. Coll.) 1925. 120 E. 89th St., New York City.

(F) GOLDSTEIN, MAX A., M.D., LL.D., F.A.C.S. (Washington Univ.) 1892. Dir., Central Inst. for the Deaf. 4574 W. Papin St., St. Louis, Mo.

(A) GORDON, EVELYNE FRANCES (Mrs. Frederick C. Gordon), S.B. (Columbia) 1936, A.M. (ibid) 1937. Director of Speech Clinic, Long Beach High School, Long Beach, L. I., New York.

(A) GOTTLOBER, ABRAHAM BER., A.B. (Adelbert Coll., Western Reserve Univ.) 1933, A.M. (Graduate Coll., W.R.U.) 1935, Ph.D. (Iowa) 1937. Dir. of Speech Clin., City Hosp., Cleveland, Ohio.

(F) GREENE, GUY SHEPARD, A.B. (Hobart) 1920, Ph.D. (Cornell) 1926. Dir. of Speech Clin. and Prof. of Public Speaking, Iowa State Coll., Ames, Iowa.

(A) GREENOUGH, JEANETTE B., A.B. (Denison Univ.) 1931, A.M. (T. Coll., Columbia) 1934. T. of Speech at Private Clin. 49 Prospect St., E. Orange, N. J.

(A) GRIFFITH, FRANCIS, A.B. (St. John's Univ., Brooklyn) 1927, A.M. (ibid) 1929. T. of Speech, James Madison High Sch., 1751 E. 29th St., Brooklyn, N. Y.

(A) GROSS, HILDRED AUGUSTA, A.B. (Mich.) 1931, A.M. (ibid) 1934. Pub. Sch. T. of Speech Cor. 4059 Montgomery Ave., Detroit, Mich.

(A) HAEFNER, GEORGE EDWARD, A.B. (Minn.), A.M. (Univ. Chicago) 1930, Ph.D. (Columbia Univ.) 1937. Instr. in Pub. Speaking, C.C.N.Y. 501 W. 110th St., N. Y. City.

(A) HAHN, EUGENE F., A.B. (Univ. Calif.) 1929, A.M. (Univ. S. Calif.) 1933. Dir. of Speech Clin. for Stutterers and Sup. of Student Teachers in Speech Cor., School of Speech, Univ. of S. Calif., Los Angeles, Calif.

(A) HALL, MARGARET ELIZABETH, A.B. (Wis.) 1927, S.M. (Univ. Chicago) 1931, Ph.D. (Iowa) 1938. Asst. in Psychol., Univ. of Iowa, Iowa City, Iowa.

(A) HALSTED, ELIZABETH MARGARET, Pub. Sch. T. of Speech Cor. 2755 Franklin St., San Francisco, Calif.

(A) HAMILTON, RUTH GREENWOOD, Ed.B. (R. I. Coll. Ed.) 1931. Pub. Sch. T. Hope Valley, R. I.

(A) HANNING, LUELLA MARIE, T. in Duluth Pub. Sch., Adm. Bldg., Duluth, Minn.

(F) HAWK, SARA STINCHFIELD (Mrs. Charles Lyle Hawk), A.B. Pittsburgh) 1914, A.M. (Iowa) 1920, Ph.D. (Wis.) 1922. Dir. of Speech Clin., Orthopedic Hosp. and Child Guidance Clin. of Los Angeles and Pasadena; Lect. on Psychol. and Speech Pathol., Univ. of S. Calif. 1577 N. Gower St., Hollywood, Calif.

(A) HEAPHY, JOHN MERRILL, A.B. (Mich.) 1925, A.M. (ibid) 1929. Pub. Sch. T. of Speech Cor. 12302 Longview Ave., Detroit, Mich.

(A) HEDRICK, JENNIE. Prin. Washington Sch. for the Cor. of Speech Defects. 3321 N. St., Washington, D. C.

(F) HELTMAN, HARRY JOSEPH, S.B. (Syracuse) 1910, A.M. (American) 1920. Chairman, Sch. of Speech and Prof. of Speech, Syracuse Univ., Syracuse, N. Y.

(A) HENDERSON, ELLEN CLARK (Mrs.), A.B. (Utah) 1911, A.M. (T. Coll., Columbia) 1925. Editor of Speech Magazine, 2507-9 Southport, Chicago, Ill.

(A) HERENDEEN, HARRIET, S.B. (Fremont Nor., Nebr.) 1906, A.B. (Wyo.) 1929. Special Educ. 2094 Neil Ave., Columbus, Ohio.

(A) HIGGINS, ROGER WOLCOTT, A.B. (Clark Univ.) 1923, A.M. (Harvard) 1931. Dir. of Speech Clin. and Instr. in English and Pub. Speaking, Phillips Academy, Andover, Mass.

(A) HOFMAN, PHYLLIS MOORHEAD, S.B. (T. Coll., Columbia) 1932, A.M. (ibid) 1934. In charge of Speech Clin. and T. of Speech, Julia Richman High Sch.; T. of Speech, Hunter Coll. Hotel St. James, 109 W. 45th St., New York City.

(A) HOLWAY, DORA EDYTHE (Mrs.), S.B. (Detroit T. Coll.) 1931. T. of Speech Cor. at Guest Sch. 14015 Rutland, Detroit, Mich.

(A) HOMONOFF, BEATRICE, A.B. (Emerson) 1938. T. of Speech Cor. in Brockton, Mass., Pub. Sch.; Sup. in several Boston Speech Clinics. 97 Hazelton St., Mattapan, Mass.

(A) HOUSE, ENOD SCOVILLE (Mrs.), A.B. (Iowa) 1930, A.M. (ibid) 1936. Pub. Sch. T. of Speech Cor. 5515 Sheridan Rd., Kenosha, Wis.

(A) HOWARD, KATHRYN LOUISA, A.B. (Mt. Holyoke) 1936. T. of English, Speech Cor., and Dramatics, Pierce Coll., Elleniko, Glyfada, Greece.

(A) HOWE, AGNES SMART, (Mrs.), B.L.I. (Emerson) 1925. T. of Speech Cor., The Studio of Speech, 813 Seventh Ave., N., St. Petersburg, Fla.

(A) HUDGINS, CLARENCE V., A.B. (Oberlin) 1928, A.M. (ibid) 1929, Ph.D. (Clark Univ.) 1932. Instr. in Psychol., Oberlin Coll. 111 S. Cedar Ave., Oberlin, Ohio.

(A) HULL, HENRIETTA C., Sc.B. (Minn.) 1936. Pub. Sch. T. of Speech Cor.; Grad. Asst. in Speech Pathol., Univ. of Minn., Minneapolis. 323 W. Broadway, Winona, Minn.

(A) HUNZIKER, MINNA ELIZABETH, A.B. (Western State T. Coll.) 1929. Speech Cor. T., Pub. High Schools. 49 Union Ave., N. E., Grand Rapids, Mich.

(A) HURD, MELBA FRANCES, A.B. (Minn.) 1927, A.M. (ibid) 1931. Instr. in Speech, Univ. of Minn. 819 Essex St., S. E., Minneapolis, Minn.

(A) HUYCK, E. MARY, A.B. (Univ. S. Dak.) 1934, A.M. (Univ. Denver) 1937. Instr. in Speech, Univ. of Ariz. 347 E. 4th, Tucson, Ariz.

(F) IMMEL, RAY KEESLAR, A.B. (Mich.) 1910, A.M. (ibid) 1913, Ph.D. (ibid) 1931. Prof. of Speech and Psychol. and Dir. Sch. of Speech, Univ. of S. Calif., 3551 University Ave., Los Angeles, Calif.

(A) JEROME, ELDON K., S.B. (Northwestern) 1932, A.M. (ibid) 1936. Asst. Dir. of Speech Clin., Purdue Univ., Lafayette, Ind.

(F) JOHNSON, WENDELL A. L., A.B. (Iowa) 1928, A.M. (ibid) 1929, Ph. D. (ibid) 1931. Dir. of Speech Clin. and Asst. Prof. of Speech Pathol., East Hall, Univ. of Iowa, Iowa City, Iowa.

(A) JONES, MAMIE JOSEPHINE, A.B. (Huntington) 1936, A.M. (Northwestern) 1937. Asst. Instr., Speech Clin., Northwestern Univ., 1913 Sherman Ave., Evanston, Ill.

(A) JOSLIN, NORA M., S.B. (Western Reserve) 1934, A.M. (Columbia) 1938. Pub. Sch. T. of Speech Cor. and Lip Reading, Cleveland, Ohio. 1544 Wyandotte Ave., Lakewood, Ohio.

(A) KANE, LILLIAN, S.B. (N. Y. Univ.) 1929, A.M. (Columbia Univ.) 1932. Dir. of Speech Clin. and Pub. Sch. T. of Speech Cor., Montclair, N. J. 679 E. 23rd St., Paterson, N. J.

(F) KANTNER, CLAUDE E., A.B. (Albion) 1928, A.M. (Wis.) 1930, Ph.D. (ibid) 1933. Dir. of Speech Clin. and Asst. Prof. of Speech, La. State Univ., Baton Rouge, La.

(A) KELLENBERGER, JEANNE, A.B. (Iowa) 1933, A.M. (ibid) 1937. 1242 Main St., Racine, Wis.

(F) KELLY, GEORGE A., A.B. (Park Coll.) 1926, A.M. (Kansas) 1928, B.Ed. (Edinburgh) 1930, Ph.D. (Iowa) 1931. Dir., Psychol. Clin., Ft. Hays Kansas State Coll. 209 W. 20th St., Hays, Kansas.

(F) KENNEDY, LOU, A.B. (Iowa) 1911, A.M. (Stanford) 1922, Ph.D. (Wis.) 1930. Dir. of Speech Clin. and Assoc. Prof. of Speech, Brooklyn Coll., Bedford Ave. and Ave. H. Brooklyn, N. Y.

(A) KENNEDY, MARION ROSALIE, A.B. (Our Lady of the Elms Coll.) 1937. T. of Speech Cor., Blessed Sacrament Sch., Holyoke. 30 Myrtle Ave., Holyoke, Mass.

(F) KENYON, ELMER LAWTON, A.B. (Harvard) 1890, M.D. (Rush) 1896. Assoc. Prof. of Otolaryngology, Rush Medical Coll., Univ. of Chicago, Emeritus. Private practice, 104 S. Michigan Ave., Chicago, Ill.

(A) KIMMELL, MELBA LOUISE, S.B. (Northwestern) 1936, A.M. (Iowa) 1937. Pub. Sch. T. of Speech Cor. 1336 Elizabeth Ave., Marinette, Wis.

(A) KIRK, KATHRYN, Speech Examiner and Demonstration Tr. of Speech Cor. in Elem. Sch. 181 Kirkland Rd., Rochester, N. Y.

(A) KLINGBEIL, HENRY CLAYTON, A.B. (Penn State) 1916, A.M. (Mich.) 1927. Instr. in Speech, Jr. Coll., 2137 Seventh St., Bay City, Mich.

(A) KLUEVER, LOIS H. COBB (Mrs. H. C. Kluever), A.B.(Iowa) 1927, A.M. (ibid) 1931. Clin. Asst. in Speech and Otolaryngology, Univ. of Iowa, Iowa City, Iowa. 505 Warden Apts., Ft. Dodge, Iowa.

(A) KNIGHT, BILLIE BRANDT, S.B. (Northwestern Univ.) 1937. In private practice at 210 Medical Arts Bldg., Houston, Texas.

(A) KNIGHT, HELEN SULLIVAN (Mrs. Paul D. Knight), A.B. (Arkansas Coll.) 1931, A.M. (Northwestern) 1936. Instr. in Speech Re-educ., Northwestern Univ., Evanston, Ill.

(A) KNIGHT, PAUL D., S.B. (Ill.) 1926. Lecturer in Speech, Northwestern Univ.; private practice in speech disorders, 55 E. Washington St., Chicago, Ill.

(A) KNUDSON, THELMA A., S.B. (Northwestern) 1928, A.M. (Iowa) 1937. Instr. in Speech and Speech Cor., Central High School, S. Bend, Indiana.

(F) KOEPP-BAKER, HERBERT, A.B. (Mich.) 1926, S.M. (Penn State) 1930, Ph.D. (Iowa) 1938. Dir. of Speech Clin., Pa. State Coll., State College, Pa.

(F) KOPP, GEORGE ADAMS, S.B. (Monmouth) 1926, S.M. (Wis.) 1930, Ph.D. (ibid) 1932. Dir. of Speech Clin. and Asst. Prof. of Speech, Wayne Univ. 8837 Dawes, Detroit, Mich.

(A) KOSH, ZELDA HORNER (Mrs.), A.B. (Adelphi Coll.) 1933, A.M. (T. C., Columbia) 1934. T. of Speech, Girls High Sch. Care of Horner, 200 Chestnut St., Brooklyn, N. Y.

(A) KRAFT, MARIE BERGIN (Mrs.), S. B. (Ithaca Coll.) 1932, A.M. (Columbia Univ.) 1935. Instr. of Speech Cor. and Speech Educ., Extension Div., Brown Univ. 97 Hilltop Ave., Providence, R. I.

(A) KRAMER, MAGDALENE, A.B. (Trinity Coll., Wash., D. C.) 1920, A.M. (Columbia) 1930, Ph.D. (ibid) 1936. Asst. Prof. of Speech, T. Coll., Columbia Univ., New York City.

(F) LACY, MABEL VIVIEN (Mrs.). Prin., Territorial Sch. for Deaf and Blind, 3440 Leahi Ave., Honolulu, Hawaii.

(A) LETZTER, MARGARET CATHERINE, A.B. (Northwestern Univ.) 1915, A.M. (ibid) 1930, Ph.D. (ibid) 1937. Dir. of Speech Clin. and Asst. Prof. of Speech, San Jose State Coll. 55 S. 6th St., San Jose, Calif.

(A) LEVARG, JOHN JACOB, M.D. (L. I. Med. Coll.) 1913. Dir. Speech Clin., Harlem Eye & Ear Hosp.; Instr. in Voice Science and Speech Pathol., New York Bd. of Educ., 55 W. 42d St., New York City.

(A) LEVY, RAYE CHARLOTTE. Pub. Sch. T. of Speech Cor. 5507 Stanton Ave., Pittsburgh, Penna.

(A) LEWIS, FLORENCE STILES (Mrs.), B.L.I. (Emerson) 1937. In charge of Speech Cor. and Lip Reading, White Plains, N. Y., Schools. Box No. 3, Briarcliff Manor, N. Y.

(A) LILJEBERG, NAOMI. Pub. Sch. T. of Speech Cor. 1924 E. River Terrace, Minneapolis, Minn.

(A) LINSCOTT, ANNE M. Private Speech Cor. Studio, 78 Greenwood Ave., Swampscott, Mass.

(A) LIPPMAN, ELEANORE, A.B. (Wis.) 1937. Pub. Sch. T. of Speech Cor. 700 Lansing, Austin, Minn.

(A) LOMBARD, ELSIE ANDERSON (Mrs.), A.B. (Macalester) 1923. Pub. Sch. T. of Speech Cor. 1490 E. 7th St., St. Paul, Minn.

(A) LUNDSTEN, HAZEL VIVIAN, A.B. (Macalester) 1922. Pub. Sch. T. of Speech Cor. 1404 Raymond Ave., St. Paul, Minn.

(A) MCCLELLAND, VERA, Ph.B. (Univ. Chicago) 1923. Kindergarten T., Hotel Carter, Cleveland, Ohio.

(A) MCCONECHY, KATHARINE MARIA. Instr. in Dept. of Speech and Drama, Regina Coll., Univ. of Sask. 3031 Rae St., Regina, Sask., Canada.

(A) MCCORD, EDNA MORRIS (Mrs.), A.B. (Hunter) 1903. Pub. Sch. T. of Speech Imp. 825 W. 187th St., New York City.

(F) MCDOWELL, ELIZABETH DICKINSON (Mrs.), A.B., S.B. (Judson) 1914, A.M. (Columbia) 1920, Ph.D. (ibid) 1928. Lahaska, Bucks County, Pa.

(F) MCGINNIS, MILDRED A., S.B. (Washington Univ.) 1933. Sup. T. of Speech Development and Cor., Univ. Coll., Washington Univ.; Dir. of Speech Clin., Central Inst. for the Deaf, 818 S. Kingshighway, St. Louis, Mo.

(A) MACLEARIE, ELIZABETH C., A.B. (Ball State T. Coll.) 1925, A.M. (Wis.) 1935. Pub. Sch. T. of Speech Cor. 2052 E. 90th St., Cleveland, Ohio.

(A) MADDOX, JAMES S., A.B. (W. Va. Univ.) 1935, A.M. (Iowa) 1937. Speech Clin. Staff and Instr. in Speech, Purdue Univ., Lafayette, Ind.

(A) MANCHESTER, MARY JANE, A.B. (Kent State Univ.) 1933, S.M. (Mich.) 1934. T. of Corrective Speech, Highland Park, Mich.; Asst. in Speech Clin., Univ. of Mich. 111 Park Terrace, Ann Arbor, Mich.

(A) MARCY, CONSTANCE, A.B. (Wheaton Coll.) 1936. Asst. in Language Clin., Mass. General Hosp., Boston. 8 Lakewood Rd., Newton Highlands, Mass.

(A) MASE, DARREL JAY, S.B. (Emporia State T. Coll.) 1928, A.M. (Mich.) 1932. Dir. State T. Coll., Calif., Pa. 813 Fifth St., California, Pa.

(F) MASON, MARIE KATHERINE, A.B. (Canisius) 1924, A.M.,(Ohio State) 1932. Asst. Dir. of Speech Clin. and Asst. Prof. of Speech and Visual Hearing, Ohio State Univ. 60 E. Norwich Ave., Columbus, Ohio.

(A) MAYER, M. GLADYS, S.B. (Wayne) 1932, S.M. (Univ. Detroit) 1936. Pub. Sch. T. of Speech Cor. 16847 Baylis, Detroit, Mich.

(A) MEADER, EMMA GRANT (Mrs. James L. Meader), S.B. (T. Coll., Columbia) 1921, A.M. (Columbia) 1923, Ph.D. (ibid) 1928. Lecturer on Psychol. and Speech, Russell Sage Coll., Troy, N.Y.

(F) MEYER, MAX FREDERICK, Ph.D. (Berlin) 1896. Research Prof. of Psychol., Univ. of Miami, Coral Gables, Fla.

(A) MILLER, ELVENA, A.B. (Wash.) 1917, A.M. (ibid) 1936. T. of Speech Cor., Roosevelt High Sch. 7330 Fifteenth Ave., N. E., Seattle, Wash.

(A) MILLS, ALICE W. (Mrs.), S.B. (Ore.) 1905, A.M. (Iowa) 1923. Dir. of Speech Cor., Child Guidance Clin., Holyoke, Mass.; Assoc. Prof. of Speech, Mt. Holyoke Coll., South Hadley, Mass.

(A) MITRANO, ANTHONY JOSEPH, A.B. (Univ. Rochester) 1933, Ph.D (Yale) 1937. Consulting Psychol. 15 Glenbrook Ave., Park Hill, Yonkers, N. Y.

(F) MORLEY, ALONZO JOHN, A.B. (Brigham Young) 1925, A.M. (ibid) 1931, Ph.D. (Iowa) 1935. Assoc. Prof. of Speech, 180 College Bldg., Brigham Young Univ., Provo, Utah.

(F) MORRIS, D. W., A.B. (Park Coll.) 1928, A.M. (Maine) 1934, Ph.D. (Iowa) 1936. Dir. of Speech Clin. and Assoc. Prof., Indiana State T. Coll. 2508 Harrington, Terre Haute, Ind.

(F) MOSER, HENRY MICHAEL, A.B. (Ohio State) 1924, A.M. (Mich.) 1927, Ph.D. (Iowa) 1936. Asst. Prof. of Speech Cor., Univ. of Mich. 1024 Baldwin Ave., Ann Arbor, Mich.

(A) MOSES, ELBERT RAYMOND, JR., A.B. (Univ. Pittsburgh) 1932, S.M. (Mich.) 1934, Ph.D. (ibid) 1936. Asst. Prof. of Speech, Ohio State Univ. 75 Erie Rd., Columbus, Ohio.

(F) MURRAY, ELWOOD, A.B. (Hastings) 1922, A.M. (Iowa) 1924. Ph.D. (ibid) 1931. Dir. of Speech Clin. and Prof. of Speech Pathol., Univ. of Denver. 2391 S. Clayton St., Denver, Colo.

(F) NATHANSON, YALE, Sc.B. (Univ. Penn.) 1923, A.M. (ibid) 1924, Ph.D. (ibid) 1930. Dir. of Speech Clin., St. Christopher's Hosp. for Children; Chief Psychol., Horace Berk Memorial Hosp. Private Practice. 269 S. 19th St., Philadelphia, Pa.

(A) NELSON, SEVERINA ELAINE, A.B. (Univ. Ill.) 1918, A.M. (ibid) 1923, Ph.D. (Wis.) 1938. Dir. of Speech Clin. and Assoc. in Speech, Univ. of Ill. 501 W. High St., Urbana, Ill.

(F) NEMOY, ELIZABETH MCGINLEY (Mrs.), A.B. (Temple) 1928, A.M. (Penn.) 1931. Lect. on Speech, Temple Univ.; Pub. Sch. T. of Speech Cor. Hotel Fairfax, 43rd and Locust, Philadelphia, Pa.

(F) NEWHART, HORACE, A.B. (Dartmouth) 1895, M.D (Mich.) 1898. Prof. of Otolaryngology, Univ. of Minn. 527 Medical Arts Bldg., Minneapolis, Minn.

(A) NORCROSS, MABEL CLARA (Mrs.), Ph. B. (Univ. Chicago) 1928, A.M. (Columbia Univ.) 1930. T. of Speech Cor., High Sch.; Private Practice, 515 Maple Lane, Highland Park, Ill.

(A) NORRIS, MARION A., A.B. (Iowa) 1933, A.M. (ibid) 1934. Pub. Sch. T. of Speech Cor. Hotel Androy, 1507 N. 21st St., Superior, Wis.

(A) NYSTROM, CLARENCE L., A.B. (Greenville) 1925, A.M. (Iowa) 1929, Ph.D. (ibid) 1932. Dir. of Speech Clin., and Assoc. Prof. of Speech, Wheaton Coll. 708 Irving Ave., Wheaton, Ill.

(A) OBERMANN, C. ESCO, A.B. (Iowa) 1926, A.M. (ibid) 1932, Ph.D. (ibid) 1938. Assoc. in Speech Pathol., Speech Clin., Univ. of Iowa, Iowa City, Iowa.

(A) OGILVIE, MARDEL, A.B. (Cornell Univ) 1931, A.M. (ibid) 1932 T. of Speech, Fredonia State Normal Sch , Fredonia, N.Y.

(A) OLIVER, DOROTHY, S.B (Northwestern) 1935. T. Asst. in charge of articulatory and voice cases, Univ. of Minn 1316 Seventh St., S. E., Minneapolis, Minn

(F) PALMER, MARTIN FRANKLIN, A.B. (Olivet) 1927, A.M. (Mich.) 1931, Sc.D. (ibid) 1937. Dir. Flo Brown Memorial Laboratory for Speech Cor.; Prof. of Speech Sciences, Univ. of Wichita. 522 S. Belmont, Wichita, Kansas.

(F) PARDOE, T. EARL, A B (Brigham Young) 1924, A.M. (S. Calif.) 1931, Ph.D. (La. State) 1936, Prof. of Speech, Brigham Young Univ. 160 S. 1st E. St., Provo, Utah.

(A) PRENTISS, HENRIETTA, A.B. (Smith) 1902, S.M. (Iowa) 1907. Prof. of Speech and Dramatics, Hunter Coll., 68th St., New York City.

(F) PRESSMAN, JOEL JAY, M.D. (Harvard) 1925, Sc.M. (Univ. Penn.) 1931 Chief of Bronchoscopic Service, Cedars of Lebanon Hosp. 1917 Wilshire Blvd., Los Angeles, Calif.

(A) RANDALL, ESTHER FRANCES, S.B. (Minn.) 1936. Pub. Sch. T. of Speech Cor. 130 E. Lake St., Chisholm, Minn.

(A) RAY, JOSEPHINE HUNTER (Mrs.), A.B. (Iowa) 1920, A.M. (Univ. S. Calif.) 1931. Instr. in Speech and Dir. of Drama, Conn. Coll., New London, Conn.

(A) READ, LILLIAN FAIRCHILD (Mrs. Raymond P. Read). Pub. Sch. T. of Speech Cor. 201 W. 52nd St., Minneapolis, Minn.

(A) REDISCH, HERMAN S., B.S.S. (C. C. N. Y.) 1934, LL.B. (St. Lawrence) 1937. Tutor in Public Speaking, Coll., City N. Y. 169 Ave. C, New York City.

(A) REID, LOREN DUDLEY, A.B. (Grinnell) 1927, A.M. (Iowa) 1930, Ph.D. (ibid) 1932. Dir. of Speech Clin. and Asst. Prof. of English, Univ. of Mo., 309 Switzler Hall, Columbia, Mo.

(A) REIGART, JOHN F., A.B. (Dickinson) 1888, Ph.D. (Columbia) 1916. (Retired). Prof. of Psychol. and Educ., T. Coll., Columbia Univ.; Prin., N. Y. City Pub. Sch. 31 Euclid Ave., Yonkers, N. Y.

(A) RICE, DELIGHT. Pub. Sch. Sup. of Speech Cor., Berkeley, Calif.

(F) ROBBINS, SAMUEL DOWSE, A.B. (Harvard) 1911, A.M. (ibid) 1919. Speech Corrector, Mass. General Hosp. and Mass. Div. of Mental Hygiene; Prof. of Psychol., Emerson Coll.; Dir., Boston Stammerers' Inst. 419 Boylston St., Boston, Mass.

(A) ROBERTS, MAUMEE, A.B. (Howard Coll.) 1935. Pub. Sch. T. of Speech Cor. and Lip Reading. 1024 S. 23rd St., Birmingham, Ala.

(A) ROE, VIVIAN IRENE, A.B. (Iowa) 1936. Pub. Sch. T. of Speech Cor. 418 S. 4th St., Mankato, Minn.

(A) ROWE, MARGARET LOUISE, A.B. (Evansville Coll) 1932. Pub. Sch. T. of Speech Cor. 213 Dreier Blvd., Evansville, Ind.

(F) RUSSELL, G. OSCAR, A.B. (B. Y. U.) 1915, A.M. (Columbia) 1918, Ph.D. (ibid) 1927. Dir. of Speech Clin. and Prof. of Speech, Ohio State Univ., Columbus, Ohio.

(A) RUSSELL, LELIA M., A.B. (Wash.) 1927, A.M. (T. Coll., Columbia) 1932. Pub. Sch. T. of Speech Cor. 4802 Park Ave., Tacoma, Wash.

(A) RUTHERFORD, BERNEICE R. (Mrs. S. J. Rutherford), S.B. (Minn.) 1934, S.M. (ibid) 1937. Pub. Sch. T. of Speech Cor. 5223 Vincent Ave., S., Minneapolis, Minn.

(A) RUTHERFORD, VIRGINIA, A.B. (Arkansas Coll.) 1935, A.M. (Northwestern) 1938. Pub. Sch. T. of Speech Re-Educ., 1533 S. 75th St., W. Allis, Wis.

(A) SANDERS, EDWARD ISAAC, A.B. (C. C. N. Y.) 1912, A.M. (Columbia) 1916, LL.B. (Brooklyn) 1929. T. of Speech, New Utrecht High Sch. 901 Washington Ave., Brooklyn, N. Y.

(A) SCHMITZ, MARY H., S.B. (Minn.) 1937. Dir. of Pub. Sch. Speech Cor., Central School, Rochester, Minn.

(F) SCOLTEN, ADRIAN HERMAN, A.B. (Wis.) 1927, M.D. (Washington Univ. in St. Louis) 1931. Psychiatrist in private practice, 690 Congress St., Portland, Me.

(A) SECORD, ARTHUR, A.B. (Western State T. Coll.) 1928, A.M. (Mich.) 1932. Dir. of Speech Clin., Univ. of Western Ont. (summer) and Univ. of Mich., Ann Arbor, Mich.

(A) SEVERANCE, ANNA PAULINE, S.B. (Syracuse Univ.) 1935, S.M. (ibid) 1937. Dir. of Speech Clin., Reconstruction Home, Inc. 302 S. Albany St., Ithaca, N. Y.

(A) SHAW, M. OCLO MILLER (Mrs. Everett W. Shaw), S.B. (Mo.) 1919, A.M. (Iowa) 1929. 278 Pine St., Holyoke, Mass.

(A) SHOVER, JAYNE, A.B. (Iowa) 1931, A.M. (ibid) 1936. Pub. Sch. Dir. of Speech Cor. and Lip Reading Instruction. 4725 Northcote, East Chicago, Ind.

(A) SILVERMAN, S. RICHARD, A.B. (Cornell) 1933, S.M. (Washington Univ.) 1938. Instr., T. Training Coll., Central Inst. for the Deaf, 818 S. Kingshighway, St. Louis, Mo.

(F) SIMON, CLARENCE T., A.B. (Wittenberg) 1919, A.M. (Northwestern) 1922, Ph.D. (Iowa) 1925. Dir. of Speech Clin. and Prof. of Speech Re-educ., Asst. Dean, School of Speech, Northwestern Univ., Evanston, Ill.

(A) SLATTENGREN, HATTIE J. E., A.B. (Gustavus Adolphus) 1929. Pub. Sch. T. of Speech Cor., Jr. High Sch., Albert Lea, Minn.

(A) SNIDECOR, JOHN C., A.B. (Univ. Calif.) 1931, A.M. (Iowa) 1937. Instr. in Speech, Univ. of Idaho, Pocatello, Idaho.

(F) SOLOMON, MEYER, M.D. (Cornell) 1909, Assoc. in Nervous and Mental Diseases, Northwestern Univ. Med. Sch. 185 N. Wabash Ave., Chicago, Ill.

(A) SONKIN, ROBERT, S.B. (C. C. N. Y.) 1928, A.M. (Columbia) 1929. Tutor in Public Speaking, City College, Convent Ave. at 139th St., New York City.

(A) SPAULDING, MARIE, S.B. (Michigan State Normal Coll.) 1935. Pub. Sch. T. of Speech Cor. 1255 Hope St., S. E., Grand Rapids, Mich.

(F) STEER, MACK DAVIS, S.B. (L. I. Univ.) 1930, A.M. (Iowa) 1933, Ph.D. (ibid) 1938. Dir. of Speech Clin. and Asst. Prof. of Speech, Speech Clinic, Purdue Univ., Lafayette, Ind.

(F) STINCHFIELD, SARA (Mrs. Charles Lyle Hawk).

(F) STODDARD, CLARA BEATRICE, S.B. (Wayne) 1932. Pub. Sch. Sup. of Speech Cor. 3779 Maybury Grand, Detroit, Mich.

(A) STREET, MALITA SEBALD (Mrs. Roy F. Street), Ph.B. (Univ. Chicago) 1934. Speech Consultant, Bedford, Mich.

(A) STUTENROTH, RUTH IRENE, A.B. (Univ. S. Dak.) 1923, A.M. (Iowa) 1937. Pub. Sch. T. of Speech Cor. 206 E. 7th, Winona, Minn.

(A) SULLIVAN, E. MARGARET, S.B. (Minn.) 1932. Pub. Sch. T. of Speech Cor. 3220 Fremont Ave., S., Minneapolis, Minn.

(A) SULLIVAN, ELLA MARY, S.B. (Minn.) 1937. Pub Sch. T. of Speech Cor. 3220 Fremont Ave., S., Minneapolis, Minn.

(A) SULLIVAN, HELEN BRITTON, (Mrs. Paul D. Knight)

(A) SULLIVAN, MARGARET J., A.B. (Loretto Hts.) 1924, A.M. (T. Coll. Columbia) 1932. Pub. Sch. T. of Speech Cor. 2628 Portland Ave., Minneapolis, Minn.

(A) TAPLIN, IDA, Sup. Speech Imp., Bd. of Educ., City Hall Annex. 39 Lincoln Pk., Newark, N. J.

(A) TAYLOR, GLENN JAMES, A.B. (Ill Nor.) 1936, A.M. (Iowa) 1937. Instr. in Speech, Westminster Coll. 210 N. Mercer, New Wilmington, Pa.

(F) TAYLOR, JANE BLISS, S.B. (Columbia) 1920, A M. (ibid) 1937. Consultant on Disorders of Speech, Dept. of Speech and Dramatics, Hunter Coll. 251 W. 97th St., New York City.

(A) TEMPLIN, MILDRED, A.B (Wis.) 1936, A.M. (ibid) 1937. Supervising Clinician of Speech Clin., Purdue Univ., Lafayette, Ind.

(F) THOMAS, CHARLES KENNETH, A.B. (Cornell) 1922, A.M. (ibid) 1924, Ph.D. (ibid) 1930. Dir. of Speech Clin. and Asst. Prof. of Public Speaking, Cornell. Goldwin Smith Hall, Ithaca, N. Y.

(A) THOMAS, RUTH HAZEL, Ph. B. (Syracuse) 1911, A.M. (Columbia) 1933. Dir. of Speech Clinics in Passaic Pub. Schools. 311 Mt. Prospect Ave., Newark, N. J.

(A) THOMPSON, HESTER EDWARDINE, S.B. (Minn.) 1935. Pub. Sch. T. of Speech Cor. 1103 E. Superior St., Duluth, Minn.

(A) TIBBITS, FRANCES BEERS, S.B. (N. Y. Univ.) 1930, A.M. (Columbia) 1933. T. of Speech Cor., 311 Mt. Prospect Ave., Newark, N. J.

(F) TRAVIS, LEE EDWARD, A.B. (Iowa) 1922, A.M. (ibid) 1923, Ph.D. (ibid) 1924. Dir. of Psychol. Clin. and Prof. of Psychol., Univ. of S. Calif., Los Angeles, Calif.

(A) ULRICH, MIRIAM NORTH (Mrs.), S.B. (Northwestern) 1930. 1156 E. 56th St., Chicago, Ill.

(A) VAN DUSEN, CLARENCE RAYMOND, A.B. (Indiana Univ.) 1931, A.M. (Mich.) 1932, Sc.D. (ibid) 1937. Dir. of Speech Clin and Instr. in Speech, Mich. State Coll. E. Lansing, Mich. 1415 W. Franklin St., Elkhart, Ind.

(A) VIAN, KATHERINE MARIE, A.B. (Western State T. Coll.) 1938. Pub. Sch. T. of Speech Cor. 401 Houston Ave., Muskegon, Mich.

(A) VOELKER, CHARLES, A.B. (Ohio State) 1931, A.M. (ibid) 1933. Dept. of Speech, E213 East Hall, Univ. of Iowa, Iowa City, Iowa.

(A) WADDLE, ELSIE LENORA, A.B. (Southwestern Coll.) 1920, A.M. (Iowa) 1934. Pub. Sch. T. of Speech Cor. 1225 S. Baltimore Ave., Tulsa, Okla.

(A) WALTERS, CHARLES HENRY, A.B (Wayne Univ.) 1929, A.M. (Wis.) 1930. Dir. of Speech Clin. and Asst. Prof. of Speech, Butler Univ., Indianapolis, Ind.

(A) WALTON, EMILY, T. of Speech Cor. and Remedial Reading. Private tutoring in Schools and Hospitals. 45 Avalon Rd., Milton, Mass.

(F) WARD, LAVILLA AMELIA. State Sup. of Speech Cor , State Dept. of Public Instruction, Madison, Wis.

(F) WELLS, EARL WILLIAM, A.B. (Iowa) 1921, A.M. (Wis.) 1927, J.D. (Iowa) 1928. Dir. of Speech Clin. and Assoc. Prof. of Speech, Oregon State Coll. 633 N. 12th St., Corvallis, Ore.

(F) WEST, ROBERT WILLIAM, Ph. D. (Wis.) 1925. Dir. of Speech Clin. and Prof. of Speech Pathol., Univ. of Wis., Madison, Wis.

(A) WHITTAKER, RUTH D., A.B. (Macalester) 1924, Pub. Sch. T. of Speech Cor. 672 S. Macalester Ave., St. Paul, Minn.

(A) WHITTEN, IDA E., A.B. (Nebraska) 1928, A.M. (ibid) 1934. Speech Correction Dept., Pub. Schools, Racine, Wis.

(A) WICKMAN, NESTOR ALFONSE, A.B. (Mich.) 1936, S.M. (ibid) 1937. Research Asst. in Speech Cor. and Audiometry, Univ. of Mich., 203 N. Ingalls, Ann Arbor, Mich.

(F) WILE, IRA S., A.B., B.S. (Rochester) 1898, S.M. (ibid) 1908, M.D. (Univ. Penn.) 1902. Dir. of Speech Clin. of Health Class at Mt. Sinai Hosp.; Lecturer on Disorders of Conduct and Personality, Columbia Univ., Brooklyn Coll., and Hunter Coll. 264 W. 73rd St., New York City.

(A) WILKE, WALTER H., A.B. (Wis.) 1928, A.M. (ibid) 1929, Ph.D. (Columbia) 1934. Asst. Prof. of Speech, N. Y. Univ., Washington Sq., East, New York City.

(A) WILKIE, LILLIAN R., S.B. (Wayne) 1936, Pub. Sch. T. of Speech Imp. 3311 Gladstone Ave., Detroit, Mich.

(A) WILLIAMS, GRACE M., A.M. (Northwestern) 1935. Dir. of Speech Clin. and Instr. in Speech, E. Ill. State T. Coll. 819 Jackson St., Apt. 2, Charleston, Ill.

(A) WILLSEA, MARY A., A.B. (Denver) 1924. Pub. Sch. T. of Speech Cor. 4669 Quitman St., Denver, Colo.

(A) WILSON, MARGARET BOYD (Mrs.), A.B. (Emerson) 1937. N. H. Mental Hygiene Clin., 105 Pleasant St., Concord, N. H.

(A) WOKURKA, ROSE ANNE, A.B. (Coll. of St. Catherine) 1932, A.M. (Minn.) 1934. Instructor in Speech Correction, Mary Manse College, Toledo, Ohio.

(F) WOOD, HARRY THOMAS, A.B. (Ill.) 1915, A.M. (Wis.) 1923. Dir. of Speech Clin. and Asst. Prof. of Public Speaking, Mich. State Nor. Coll. 938 W. Forest Ave., Ypsilanti, Mich.

(A) WRIGHT, JULIA M., A.B. (Denver) 1928. Pub. Sch. T. of Speech Cor. 4669 Quitman St., Denver, Colo.

(A) YOAKAM, DORIS G., A.B. (S. Calif.) 1931, A.M. (ibid) 1932, Ph.D. (ibid) 1935. Dir. of Speech Clin., and Prof. of Speech, N. Ill. State T. Coll., De Kalb, Ill.

(A) YOUNG, ADELBERT JACOB, A.B. (Wis.) 1924. Dir. of Pub. Sch. Speech Clin. 638 State St., Oconomowoc, Wis.

(A) ZEIMES, DORITHY JOAN, S.B. (Minn.) 1936, S.M. (ibid) 1937. T. of Speech Cor., Independent Sch. Dist. No. 2, Itasca County, Minn. Coleraine, Minn.

(A) ZEITLIN, ROSALYN ROSENTHAL (Mrs. N. S. Zeitlin), A.B. (Wis.) 1930, A.M. (Northwestern) 1936. T. of Remedial Speech, Chicago Conservatory of Music. 708 Buena Ave., Chicago, Ill.

(F) ZERLER, MARY LOUISE, S.B. (T. Coll., Columbia) 1931, A.M. (ibid) 1936. Pub. Sch. Dir. of Speech Cor., Yonkers, N. Y. 517 W. 113th St., New York City.

(A) ZIMMER, CATHERINE H., A.B. (Mich.) 1932. T. of Speech Cor., Shorewood Pub. Schools. 4305 N. Marlborough Dr., Milwaukee, Wis.

(F) ZIMMERMAN, JANE DORSEY (Mrs. Max Zimmerman), S.B. (Columbia) 1922, A.M. (ibid) 1923. Dir. of Speech Clin. and Assoc. in Speech, T. Coll., Columbia Univ. 501 W. 120th St., New York City.

GEOGRAPHICAL DIRECTORY

ALABAMA: *Birmingham*—Evans, M. F., Roberts, M.

ARIZONA: *Tucson*—Cable, W. A., Huyck, E. M.

CALIFORNIA: *Berkeley*—Casebolt, J. D., Rice, D.; *Hollywood*—Hawk, S.S.; *Los Angeles*—Bietry, J. R., Chapin, A. C., Hahn, E. F., Immel, R. K., Pressman, J. J., Travis, L. E.; *San Francisco*—Cotrel, E., Gifford, M. F., Halstead, E. M.; *San Jose*—Letzter, M. C.; *San Luis Obispo*—Moore, J. D.; *South Pasadena*—Brigham, F. M.

COLORADO: *Denver*—Bluemel, C. S., Murray, E., Willsea, M. A., Wright, J. M.

CONNECTICUT: *Hartford*—Amidon, H. F.; *New London*—Ray, J. H.

DISTRICT OF COLUMBIA: Atherton, G. W., Hedrick, J.

FLORIDA: *Coral Gables*—Meyer, M. F.; *Gainesville*—Tew, R. E.; *Saint Petersburg*—Howe, A. S.

GEORGIA: *Atlanta*—Davison, L. D.

IDAHO: *Pocatello*—Snidecor, J. C.

ILLINOIS: *Charleston*—Williams, G. M.; *Chicago*—Beck, E. C., Gaines, F. P., Hayden, A. A., Henderson, E. C., Kenyon, E. L., Knight, P. D., Solomon, M., Ulrich, M. N., Zeitlin, R. R.; *De Kalb*—Yoakum, D. G.; *Evanston*—Brackett, I. P., Carhart, R. T., Crews, L. M., Finger, V., Jones, M. J., Knight, H. S., Moore, G. P., Mueller, H. DuC., Simon, C. T.; *Highland Park*—Norcross, M. C.; *Joliet*—Wokurka, R. A.; *Rockford*—Berry, M. F.; *Urbana*—Anderson, D. I., Nelson, S. E.; *Wheaton*—Nystrom, C. L.

INDIANA: *Bloomington*—Gardner, W. H., Milisen, R. L.; *East Chicago*—Duke, D., Shover, J.; *Elkhart*—Van Dusen, C. R.; *Evansville*—Rowe, M. L.; *Indianapolis*—Burdin, L. G., Walters, C. H.; *Lafayette*—Calvert, R. R., Jerome, E. K., Maddox, J. S., Steer, M. D., Templin, M.; *South Bend*—Knudson, T. A.; *Terre Haute*—Morris, D. W.

IOWA: *Ames*—Greene, G. S.; *Cedar Falls*—Henrikson, E. H., Lambertson, F. W.; *Des Moines*—Deimer, M. G.; *Fort Dodge*—Kleuver, L. H.; *Grinnell*—Bissell, V. L.; *Iowa City*—Davis, D. M., Hall, M. E., Johnson, W., Obermann, C. E., Voelker, C.

KANSAS: *Hays*—Kelly, G. A.; *Lawrence*—Anderson, M. L.; *Neodesha*—Garrison, E. G.; *Topeka*—Johnston, M. K.; *Wichita*—Palmer, M. F.

LOUISIANA: *Baton Rouge*—Kantner, C. E.

MAINE: *Portland*—Scolten, A. H.

MARYLAND: *Baltimore*—Fowler, D. N., Glasner, P. J.

MASSACHUSETTS: *Andover*—Higgins, R. W.; *Boston*—Homonoff B., Robbins, S. D.; *Holyoke*—Fitz-Gibbon, J. J., Kennedy, M. R., Shaw, M. O.; *Lowell*—Casey, M. H.; *Milton*—Walton, E. T.; *Newton Highlands*—Marcy, C.; *North Amherst*—Dow, C. W.; *Revere*—Hamblin, M. J.; *South Hadley*—Mills, A. W.; *Swampscott*—Linscott, A. M.; *Waltham*—Beirne, H. C.

MICHIGAN: *Ann Arbor*—Bloomer, H. H., Clancy, J. N., Moser, H. M., Secord, A., Wickman, N. A.; *Bay City*—Klingbeil, H. C.; *Bedford*—Street, M. S.; *Detroit*—Ainsworth, S. H., Blanchard, D. L., Geeson, E. L., Gross, H. A , Heaphy, J. M., Holway, D. E , Kopp, G. A., Mayer, M. G., Stoddard, C. B., Wilkie, L. R.; *Grand Rapids*—Doty, F. E., Estabrook, E. P., Hunziker, M. E., Spaulding, M., Wilson, A.; *Holland*—Shackson, R.; *Kalamazoo*—Van Riper, C.; *Muskegon*—Vian, K. M.; *Ypsilanti*—Wood, H. T.

MINNESOTA: *Albert Lea*—Slattengren, H. J.; *Austin*—Arnold, G., Lippman, E.; *Chisholm*—Randall, E. F.; *Coleraine*—Zeimes, D. J.; *Duluth*—Hanning, L. M., Northrop, L. D., Thompson, H. E.; *Minneapolis*—Bishop, J. H., Blanchette, A. M., Brown, S. F., Bryne, M. E., Bryngelson, B., Chapman, J. E., Hurd, M. F., Liljeberg, N., Millsapps, L. S., Newhart, H., Oliver, D., Read, L. F., Rutherford, B. R., Sullivan, E. Margaret, Sullivan, E. Mary, Sullivan, M. J.; *Rochester*—Glaspey, E., Schmitz, M. H.; *Saint Paul*—Lombard, E. A., Lundsten, H. V., Whittaker, R. D.; *Winona*—Hull, H. C.

MISSOURI: *Columbia*—Gilman, W. E., Reid, L. D.; *Saint Louis*—Bunch, C. C., Elliott, L. C, Fagan, H. R., Fagan, L. B., Goldstein,; M. A., McGinnis, M. A., Silverman, S. R.

NEW HAMPSHIRE: *Concord*—Wilson, M. B.

NEW JERSEY: *East Orange*—Greenough, J. B.; *Newark*—Taplin, I., Thomas, R. H., Tibbits, F. B.; *Paterson*—Kane, L.; *Trenton*—Nelson, B. E.

NEW YORK: *Briarcliff Manor*—Lewis, F. S.; *Brooklyn*—Griffith, F., Kennedy, L., Kosh, Z. H., Miano, K. P., Sanders, E. I.; *East Hampton*—Carlson, E. R.; *Flushing*—Bender, J. F.; *Fredonia*—Ogilvie, M.; *Garden City*—Brown, F. W.; *Geneva*—Faison, M. H.; *Glen Cove*—Cass, M. T.; *Hartsdale*—Raubicheck, L. E.; *Ithaca*—Severance, A. P., Thomas, C. K.; *Keuka Park*—Baker, M. H.; *Kings Park*—Schnap, I.; *Long Beach*—Gordon, E. F.; *Newburgh*—Williams, E. E.; *New York City*—Allardice, A. I., Arey, M. L., Barnett, R. L., Blanton, S., Bronstein, A. J., Busse, A. C., Collarte, M. K., Damon, K. F., Douris, E. F., Farrell, E. A., Gavin, M. L., Glauber, I. P., Haefner, G. E., Hibbitt, G. W., Kleinfeld, V. M., Kramer, M., Levbarg, J. J., McCord, E. M., Moorhead, P. L , Mulgrave, D. I., Prentiss, H., Redisch, H S., Ryan, E. H., Sonkin, R., Taylor, J. B , Vogt. J. A., Weisberg, H. I., Wile, I. S., Wilke, W. H., Zerler, M. L., Zimmerman, J D.; *Rochester*—Ball, M. A.; *Syracuse*—Heltman, H. J.; *Troy*—Meader, E. G.; *Yonkers*—Dunn, M. L., Mitrano, A. J., Reigart, J. F

OHIO: *Athens*—Dawes, R. G.; *Cleveland*—Buchholz, C. A., Gottlober, A. B., McClellan, V., Mac Learie, E. C., Williams, M. C., Zeile, A.; *Columbus*—Bakes, F. P., Herendeen, H., Mason, M. K., Moses, E. R., Russell, G. O.; *Kent*—Moore, W. E.; *Lakewood*—Joslin, N. M.

OKLAHOMA: *Tulsa*—Waddle, E. L.

OREGON: *Corvallis*—Wells, E. W.

PENNSYLVANIA: *California*—Mase, D. J.; *Johnstown*—Ellenberger, M. V.; *Lahaska*—McDowell, E. D.; *New Wilmington*—Taylor, G. J.; *Philadelphia*—Nathanson, Y., Nemoy, E. McG.; *Pittsburgh*—Levy, R. C., Monroe, M.; *Slippery Rock*—Backus, O. L.; *State College*—Koepp-Baker, H.; *York*—Bell, A. B.

RHODE ISLAND: *Hope Valley*—Hamilton, R. G.; *Providence*—Kraft, M. B.

TEXAS: *Dallas*—Berwick, N. H.; *Houston*—Knight, B. B.

UTAH: *Provo*—Morley, A. J., Pardoe, T. E.; *Salt Lake City*—Clark, R. M.

VIRGINIA: *Hampton*—Brown, H.

WASHINGTON: *Bellingham*—Cotton, J. C.; *Seattle*—Burnett, B. M., Miller, E., Strother, C. R.; *Tacoma*—Russell, L. M.

WISCONSIN: *Eau Claire*—Sinn, A.; *Janesville*—Fishel, M. V.; *Kenosha*—House, E. S.; *Madison*—Camp, P. B., Powers, M. B., Ward, L. A., West, R. W.; *Marinette*—Kimmell, M. L.; *Milwaukee*—Austin, P. S., Carr, A. M., Flannagan, E., Zimmer, C.; *Oconomowoc*—Young, A. J.; *Oshkosh*—Davies, N. E.; *Racine*—Kellenberger, J., Whitten, I. E.; *Superior*—Norris, M.; *Wauwatosa*—Cryan, M.; *West Allis*—Rutherford, V.

HAWAII: *Honolulu*—Lacy, M. V.

CANADA: SASKATCHEWAN: *Regina*—McConechy, K. M.

GREECE: GLYFADA: *Elleniko*—Howard, K. L.

A SURVEY OF SPEECH DEFECTS IN ILLINOIS HIGH SCHOOLS

RAYMOND CARHART, Ph.D.
Northwestern University

The incidence of speech defects throughout Illinois high schools has long gone undetermined. There is no record of a state-wide survey indicating the magnitude of the speech rehabilitation problem facing Illinois teachers and speech correctionists. Consequently, the Speech Correction section of the 1936 Illinois High School Conference appointed a committee to ascertain the proportion of speech defectives among the high school students of the state.[1]

PROCEDURE

The committee, aware that it was impractical to have experienced speech correctionists examine personally the high school population involved, decided the best procedure would be to conduct a questionnaire type survey. Specifically, the form reproduced in Table I was sent to every accredited Illinois high school.[2] This questionnaire sheet, it will be observed, requested three types of information. At the top of the sheet were spaces for listing the qualifications of the persons in each school who assisted in the survey. A second series of spaces further down the sheet were for recording by grade and sex the number of speech defectives in each school.[3] Finally, each school was asked to describe its plan for dealing with speech disorders.

---

[1]The committee, under the chairmanship of the writer, included Dr. Severina Nelson of the University of Illinois, Prof. F. Lincoln D. Holmes of Illinois State Normal University, and Mr. Glenn Taylor, formerly of Granville High School. The committee is indebted to Prof. M. D. Steer of Purdue University for many valuable suggestions.

[2]One of the difficulties of conducting a questionnaire survey is that of getting high school administrators to cooperate. In this instance, however, the difficulty was minimized because of the assistance given the committee by Prof. Arthur W. Clevinger, High School Visitor for the University of Illinois. Prof. Clevinger kindly printed the questionnaire and had it sent out from his office. Because the High School Visitor's office is an official accrediting agency within the state, its communications receive careful attention from high school administrators. Therefore, the committee was assured of a much fuller response than would otherwise have been gained.

[3]Although speech disorders could be listed under six headings, these reduce to the three-fold classification of articulatory, voice, and rhythm problems. No attempt was made to get an entirely accurate record of the deviations encountered. For example, the distinction between organic and functional defects was ignored. Justification for such procedure rests on the fact that most of the questionnaires were destined to be answered by persons untrained in diagnosing speech disorders. For this reason the short definitions printed

Obviously, a questionnaire survey relying upon lay examiners can not be counted upon to give the most accurate results. Under such circumstances one would expect great variations in judgment. A condition recorded by one examiner might be overlooked by another. In general, however, such variations are permissible if the results obtained are properly evaluated. Provided the sampling has been adequate the data will still reveal those defects which lay examiners will recognize. Such information has value. It at least indicates the most pressing speech rehabilitation needs within the population being studied. When, as in the present instance, the examiners are high school teachers the results also furnish a strong argument for the establishment of corrective programs. The figures gathered represent the findings of average teachers rather than of highly specialized and presumably more critical speech experts. Thus, whatever student needs are revealed seem more real and immediate to teachers and administrators.

While the committee received returns from 577 of the 815 accredited Illinois high schools, only 405 of these returns were complete enough to be worth studying. That is, approximately 49.7 per cent of the high schools submitted usable reports. Moreover, as 67,532 boys and 77,038 girls were enrolled in these 405 schools, the total number of students involved was 144,570. Consequently the number of schools studied was sufficient and their total enrollment was ample to yield, within the accuracy limits of the questionnaire, a good picture of speech needs throughout Illinois.

TABLE I

QUALIFICATIONS OF EXAMINERS

Before discussing the speech handicaps reported by the 405 schools from which adequate data were received, it is worth while to note the qualifications of the people who gathered these data. Information is at hand on 841 of the examiners who assisted in the survey.[4] For the most part these examiners were regular high school teachers. As would be expected, the majority were holders of Bachelor's degrees, only 29.1 per cent having Master's degrees. Again, most were English teachers. Specifically, 43.4 per cent taught only English as compared to 34.8 per cent who taught English plus some other subject. In contrast, full-time Speech teachers made up only 3.9 per cent of the total. One examiner in every ten, however, was a part-time Speech teacher. The remaining 7.9 per cent taught subjects other than English or Speech.

---

at the bottom of the page were designed to give those unfamiliar with the disorders some idea of the type of information desired rather than to satisfy the speech correctionist.

At Prof. Clevinger's suggestion schools were also asked to list students evidencing "platform deficiency." It was thought that comparison of platform deficiency totals with those for speech disorders would suggest the relative magnitudes of the two types of problems.

[4]This figure is incomplete because some returns merely stated, without giving details, that all home-room or all English teachers within the system had cooperated.

TABLE I

ILLINOIS SURVEY OF HIGH SCHOOL PUPILS WHO ARE HANDICAPPED BY SPEECH DEFECTS — For High School Visitor

.....High School City..... County..... School Year 1937–38

Principal

Names of teachers making this survey	Subjects taught by these teachers	Highest degree	Institution granting this degree	Number of semester hours in Speech
1.				
2.				
3.				
4.				

DIRECTIONS: This report should be made preferably by one who has had training in speech and who is competent to recognize and classify speech defects. If no such person is employed it is suggested that this survey be made by English teachers. Count ONLY ONCE each pupil having Speech Defect No. 1, No. 2, No. 3 or combinations of these defects as indicated. Make a separate report for Speech Defect No. 4 COUNTING ALSO those pupils reported as having other speech defects. On the other side of this sheet give as much information as possible relative to the program for correcting speech defects of pupils enrolled in this school. (Mention such items as special classes, individual help, speech equipment, employment of experts on speech training, and amount of time devoted to correction of speech defects.)

Grade	Total Enrollment		Number of pupils having speech defect or combinations of defects (See defects as classified and listed below)															
			3 & 1		3 & 2		2 & 1		1		2		3		Total		4	
	Boys	Girls	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
9																		
10																		
11																		
12																		
Total																		

1. Indistinct speech including dialects, foreign accent, lisping, excessive mumbling, poor enunciation, or any other faulty articulation.
2. Unpleasant voice, including nasality, monotone, high pitch, hoarseness, huskiness, throatiness, or any other unpleasant voice quality.
3. Stuttering or stammering—either speaking in a hasty and stumbling manner with spasmodic repetitions of syllables and sounds or stopping involuntarily when uttering syllables and words.
4. Platform deficiency—a general deficiency in oral presentation and organization during recitations and similar speech situations.

On the basis of these facts one might surmise the average examiner had not received much speech training during his or her college years. As can be seen by studying Table II, such a surmise is correct. The 841 examiners averaged between 7 and 8 semester hours of college speech credit. In only a few instances, moreover, did this speech training include work in speech correction. It is apparent, therefore, that most of the reports received by the committee represented the opinions of people unskilled in diagnosing speech disorders.

TABLE II

COLLEGE SPEECH CREDIT EARNED BY 841 EXAMINERS ASSISTING IN THE SURVEY

Semester hours of college Speech credit	Percentage of the 841 examiners
0	27.5
1 to 5	30.8
6 to 10	21.1
11 to 15	6.4
16 to 25	6.8
26 to 35	3.1
36 or more	4.3

DISTRIBUTION OF SPEECH DEFECTS ACCORDING TO HIGH SCHOOL SIZE

In a rough way the segregation of Illinois high schools according to total enrollment tends to separate rural from urban schools. The larger the school, generally speaking, the larger the community it serves. Therefore, it was decided to analyze the data received in order to learn whether or not the incidence of speech defects tended to vary with school size. What such an analysis revealed is shown by Table III, which summarizes the results obtained when the schools were classified according to size into five groups.[5] It will be seen that the smaller schools reported a considerably higher percentage of speech problems. While this might be interpreted as indicating that speech disorders tend to be more prevalent in rural sections of Illinois, there are reasons why the conclusion is doubtful. It is more likely that the returns from smaller schools were more complete. At the beginning of the school year teachers in smaller schools knew their pupils better. Moreover, where the faculty was small, teachers requested to aid in the survey probably felt more personal responsibility for the final report from their school. For

[5]Of the 405 schools there were 137 with total enrollments of 100 students or less, 158 with total enrollments ranging from 101 to 250 students, 57 with total enrollments of between 251 and 500 students, 20 with total enrollments of 501 to 1,000 students, and 33 with total enrollments of 1,001 or more. Although the number of schools in different groups varied, the groups could be compared by dealing in percentages. For each group the numerical enrollment total was made the 100 per cent base to which refer the speech disorder percentages attributed to schools of that size.

these two reasons the survey of schools with smaller enrollments was probably more thorough. On the whole this conclusion is borne out by study of individual questionnaires. Thus, while some of the largest schools listed as high as 25 or 30 per cent of their students as speech defectives, others reported speech disorders as comprising only 1 to 3 per cent of the total enrollment. In all likelihood, chance distribution did not account for such discrepancies. When, for example, one Chicago high school with an enrollment of 2,144 indicated only 21 speech cases and another Chicago high school having 2,465 pupils recorded 1,004 defectives, it is probable that in the first school many existing disorders were overlooked. The end result of combining careful with superficial reports would be to lower the final defect percentages. Assuming that data from larger schools were more often superficial than were those from smaller schools, the differences due to this fact might well mask whatever actual variations might exist between urban and rural high school populations.

TABLE III

INCIDENCE OF SPEECH DEFECTS ACCORDING TO SCHOOL SIZE, EXPRESSED IN PERCENTAGES*

School size	Total enrollment	Speech defects							
		3+1	3+2	2+1	1	2	3	Total (except 4)	4
Less than 100 students....	100	3.43	1.57	5.24	10.8	8.23	2.17	31.4	25.4
101 to 250 students....	100	3.11	1.98	3.83	10.3	7.30	2.60	29.1	18.7
251 to 500 students....	100	3.06	3.05	6.38	9.95	7.51	2.22	32.2	14.9
501 to 1,000 students....	100	1.50	0.72	2.34	7.74	4.61	1.42	16.3	9.66
1,001 or more students....	100	2.05	0.92	2.46	5.73	2.78	1.01	15.0	8.89
Average per cent..	100	2.40	1.42	3.38	7.39	4.70	1.54	20.8	12.4

GRADE DISTRIBUTION OF SPEECH DEFECTIVES

Small but consistent decreases in the percentages of speech handicaps were encountered in successively higher school grades. For example, 23.3 per cent of the 43,130 freshmen, 21.0 per cent of 40,193 sophomores, 20.0 per cent of 33,853 juniors, and 17.8 per cent of 27,394 seniors were listed as speech defectives. As Table IV shows, this trend was consistent enough so that it probably shows actual differences in the distribution of speech defectives. Nevertheless, the present study gives no indication of the reasons for such

*For meaning of column headings see Table I.

distribution differences. It may be that a certain number of high school students outgrow their speech handicaps. On the other hand, poor speech may be one of the factors which leads students to drop out of high school. If this be so, fewer speech deviates would be found among seniors because less of them would stay in school long enough to reach that level.

TABLE IV

INCIDENCE OF SPEECH DEFECTS ACCORDING TO GRADE, EXPRESSED IN PERCENTAGES*

Grade	Total enrollment	Speech defects							
		3+1	3+2	2+1	1	2	3	Total (except 4)	4
9	100	3.00	1.70	3.68	8.10	4.83	1.86	23.2	12.7
10	100	2.58	1.44	3.24	7.56	4.75	1.48	21.0	13.4
11	100	1.98	1.27	3.14	7.50	4.70	1.38	20.0	12.0
12	100	1.72	1.13	3.35	5.88	4.38	1.35	17.8	10.9
Average per cent	100	2.40	1.42	3.38	7.38	4.70	1.54	20.8	12.4

SEX DISTRIBUTIONS OF SPEECH DEFECTIVES

As other surveys would lead one to expect, a greater percentage of boys than of girls were found to have defective speech. Table V reveals this fact. Considering each grade separately, there was a percentage difference of from 3.9 to 7.3 in favor of the girls. Moreover, comparing all boys with all girls showed the percentage for boys to exceed that for girls by 5.6.

TABLE V

INCIDENCE OF SPEECH DEFECTS ACCORDING TO SEX, EXPRESSED IN PERCENTAGES

Grade	Total enrollment		Total speech defects (except 4)		Difference between boys and girls
	Boys	Girls	Boys	Girls	
9	100	100	25.2	21.3	3.9
10	100	100	24.6	18.0	6.6
11	100	100	24.0	16.7	7.3
12	100	100	20.4	15.4	5.0
Average	100	100	23.8	18.2	5.6

*For meaning of column headings see Table I.

TOTAL INCIDENCE OF SPEECH DEFECTIVES

As mentioned earlier 144,570 students were enrolled in the 405 Illinois high schools being considered here. Examination of Table VI will show that 30,103 of these students were judged by high school teachers to be speech defectives. In other words, 20.8 per cent of 144,570 pupils were reported as needing speech rehabilitation. This percentage, however, is lowered slightly if one accepts the claims of 37 additional schools which asserted that all of their students were free from speech handicaps. There were 6,013 pupils enrolled in these 37 schools. Adding 6,013 to the total enrollment figure of 144,570 gives 150,583. Assuming, therefore, that 30,103 out of 150,583 students enrolled in 442 schools were defectives, 20.0 per cent of all these students had speech disorders. In other words, *out of 150,583 students every fifth pupil was judged by teachers untrained in speech correction as having faulty speech.*

It must not be thought that the percentage just presented gives a completely accurate picture of the needs in Illinois high schools. As already indicated, variations in the accuracy of returns from different schools probably accounted for the higher speech defect percentage reported by smaller schools. The reasons for this are related to the greater ease with which a survey like the present one can be administered in a smaller school. The larger the school the easier it is to overlook some of the pupils with faulty speech, the less thorough the canvassing of the entire school population. If this be true, the reports from smaller schools probably give the truer picture of the speech rehabilitation needs of Illinois high school students. Therefore, one might argue that more than 20.8 per cent of the Illinois high school students have speech defects. Such a view is supported by surveys which speech correctionists have conducted in a few Illinois high schools. For example, the Highland Park High School and the Lake Forest High School follow a joint plan whereby every new student, freshman or upperclassman, is tested by a speech correctionist. Of the 514 new students tested last year, 143 (28.2 per cent) evidenced speech disorders. Furthermore, "the number of cases from these new students, needing speech instruction in varying degrees, has been about the same for the past three years. It may be considered as an average."[6] Again, a similar plan of examining all new students was followed for several years at the Evanston Township High School. Over a three year period 927, or 46 per cent, of the 2,006 freshmen studied showed speech deviations.[7] Therefore, it is likely that a state-wide survey using specially trained examiners would show the incidence of speech defects to be considerably greater than the present study indicates.

---

[6]Quoted from the reports received from these two schools by the survey committee.

[7]Hollingshead, Marie, "A Survey of the Speech Situation in Evanston Township High School 1932–33, 1933–34, 1934–35," *Master's Thesis*, Northwestern University, p. 7.

Despite its inaccuracies the present survey has value. The speech correctionist often faces the problem of increasing the consciousness of school administrators and teachers to the speech rehabilitation needs among their students. The question often arises as to how many of the deviations which the correctionist discovers in his careful surveys are severe enough to be easily recognized by the layman. Hence, a state-wide survey which shows that individuals untrained in recognizing speech problems observe a defect in the speech of every fifth high school student is valuable in showing administrators the need for speech rehabilitation programs.

TABLE VI

INCIDENCE OF SPEECH DEFECTS ACCORDING TO GRADE, EXPRESSED IN NUMERICAL TOTALS*

Grade	Total enrollment	Speech defects							
		3+1	3+2	2+1	1	2	3	Total (except 4)	4
9	43,130	1,296	733	1,590	3,487	2,086	801	9,993	5,483
10	40,193	1,036	580	1,304	3,037	1,911	596	8,464	5,402
11	33,853	670	431	1,063	2,540	1,592	468	6,764	4,069
12	27,394	471	311	919	1,610	1,200	371	4,882	2,994
Total	144,570	3,473	2,055	4,876	10,674	6,789	2,236	30,103	17,948

INCIDENCE OF PLATFORM DEFICIENCY

Platform deficiency, defined as " . . . a general deficiency in oral presentation during recitations and in similar speech situations," was studied in the present survey because it was thought that a rough comparison of its prevalence with that of speech defects would be interesting. Several of the tables which have been presented carry platform deficiency figures. These appear in the extreme right-hand column under the heading 4. Examination of the tables reveals that fewer students were reported as showing platform deficiency than as being speech defectives. Specifically, only 12.4 per cent of 144,570 students were judged by their teachers as lacking in platform skill. Because the survey sheet definitely asked examiners not to exclude any pupils with other speech problems who should be included in the platform deficiency count, it may be reasoned that many students with speech defects were judged by their teachers as not being particularly handicapped in recitation situations. Beyond this conclusion little information can be drawn from the above figures. All that can be said is that Illinois high school teachers judged 12.4 per cent of their students to be markedly below average in their recitational usages. The data presented here must not be interpreted as a

*For meaning of column headings see Table I.

fair gauge of the state-wide need for public speaking training. Certainly, students judged as *adequate* in platform skill would profit from the additional polish and skill which such training affords. In other words, the term "platform deficiency" as defined for the present survey was indefinite and ambiguous. Consequently, data based on such a definition are inaccurate and do not suggest the true need for public speaking classes.

TABLE VII

TYPES OF CORRECTIVE PROGRAMS USED BY ILLINOIS HIGH SCHOOLS, EXPRESSED IN PERCENTAGES

Size of school	Total schools of group	No attention given speech defects	Incidental attention after school or as part of regular work	Definite corrective program
Group I (Under 100)	100.00	51.9	45.2	2.9
Group II) (101 to 250)	100.00	64.5	33.6	1.9
Group III (251 to 500)	100.00	57.9	38.6	3.5
Group IV (501 to 1000)	100.00	75.0	25.0	0.0
Group V (1000 or over)	100.00	36.4	39.4	24.2
Average per cent....	100.00	57.5	38.3	4.2

SPEECH CORRECTION PROGRAMS

Very little definite speech correction work is being done in Illinois high schools. Table VII summarizes the corrective programs of 405 schools. More than half of these schools did not report any corrective plan. The implication in these cases is that no definite programs exist. Of the remaining schools, most deal with speech problems incidentally, only 4.2 per cent having definitely organized speech rehabilitation programs. Thus, taking into account schools of all sizes, only about one school in twenty-five has an organized program. Such a figure, however, is not entirely fair. Of the 33 schools with enrollments of 1,000 or more, 24.2 per cent have definite rehabilitation programs. Thus, in general, the largest schools of the state have been quickest to furnish speech re-education opportunities for their students. Nevertheless, throughout the state as a whole provisions are too meager to meet the needs of high school speech defectives.

SUMMARY

A survey was conducted to determine the incidence of speech defects among Illinois high school students. Adequate data were obtained from 405 schools enrolling 144,570 students. Analysis of the data revealed more speech deviations among boys than among girls. Moreover, the percentage of speech disorders decreased progressively from the freshman to the senior level. Despite the limitations in the technique of the present study, these two trends were consistent enough so that they indicate actual tendencies. A third observed trend, greater prevalence of speech handicaps in smaller schools, is of doubtful validity. This finding was probably due to the tendency toward more complete reports from smaller schools. Again, although 12.4 per cent of all 144,570 pupils were reported as showing platform deficiency, 20.8 per cent or more have articulatory, voice, or rhythm difficulties. Thus, with at least every fifth Illinois high school student needing rehabilitation, there exists a severe problem. Despite this fact the problem is receiving scant attention. Only 4.2 per cent of the 405 schools have definite corrective programs, while 38.3 per cent give speech defects only incidental attention, and 57.3 per cent either report no program or state that the problem is ignored.

Dr. C. S. Bluemel has donated his library on stammering and speech methods to the Department of Speech at the University of Denver. The collection is now being catalogued and deposited in the Mary Reed Library at the University. This collection is probably the most complete on these subjects in the country. It includes all the important publications from German, French, British, and American sources during the past century. The volumes, journals, and pamphlets will be available to responsible research workers.

STUDIES OF GROWTH OF SPEECH OF PRE-SCHOOL CHILDREN

MILDRED TEMPLIN[1] and M. D. STEER
Purdue University

This is a report of the first two years' work on a series of studies designed to analyze the growth of speech in children. The entire study is an attempt to obtain further information in the development of articulation, voice quality, and rhythm of pre-school children. Not only is it an attempt to observe the normal growth, but also to investigate the growth of speech defects in these children, and lastly, to develop some form of teaching or training for the prevention of defects. Up to this point, the investigation emphasizes the study of the speech sounds in the pre-school children.

During the past two years this study has been carried on with the assistance of the Purdue Nursery school staff[2], and during the last year, the Lafayette Emergency Nursery school staff has also cooperated. Repeated short observations were made on the general articulation, voice and rhythm of the Purdue children for one year, and an especially designed picture articulation test was given to both the Purdue and the WPA children at intervals.

The children at the Purdue Nursery school were observed in their ordinary play situations several mornings a week by a member of the Speech Clinic staff. These observations have been continued for two semesters. During the first semester 27 children, 14 girls and 13 boys, were observed. During the second semester, 24 children, 14 girls and 10 boys, were observed.

A first general impression of the speech of each child was made by three speech clinicians. After that, one clinician continued the observations of the various aspects of the speech of the children. The general plan of these observations was to observe one aspect of speech at a time. That is, one day the voice of the children would be observed, another day the general articulation picture, and on another the rhythm. The teacher's observations were recorded on a specially constructed rating sheet.

In the observation of articulation the general impression of the articulatory aspect of the speech of the child was primarily noted. The general impression from good speech to that of serious articulatory difficulty was rated on a scale from 0 to 3. Any sounds that were obviously defective, omitted or substituted were checked, but a specific and definite picture was left to be obtained from the individual picture articulation test. Rather than "Does the child have a lateral 's'?" we have been prone to ask in this aspect of the

[1]Report made to the American Speech Correction Association, December 29, 1938.

[2]Dr. Harriet E. O'Shea, professor of child psychology at Purdue University, is co-operating in this study.

study "Is his propositional speech intelligible?" In general, the observation on the general articulation showed that many sounds were substituted or omitted. Some of the children had cluttered, indistinct running speech, although they had comparatively few omitted or substituted sounds; whereas the speech of others with more substituted or omitted sounds was more intelligible.

In the observation of the voice, the quality, whether muffled, metallic, nasal, harsh, breathy, or hoarse-husky; the pitch, whether high, low or average; and the intensity, whether weak, moderate, or strong, was recorded. Although the numbers are small, there is considerable agreement in the report on the voice quality, pitch and intensity of both boys and girls for the two semesters they were observed. The general picture of the voices of the children of Lafayette—and so far whatever we say, can be said only of the children of this community—after the first semester's observation, was that they have slightly harsh, muffled or metallic voices. Girls tend to have more nasal voices than boys. Girls have rather high pitched voices of average intensity, but they are quite evenly distributed throughout the pitch range. Those children with low voices have weak intensity. The children showed rapid pitch and intensity variation. The observations for the second semester tend to show the same general picture as those of the previous, with two exceptions. (1) Slightly more denasality was present among the children throughout the second group of observations. The voices of the girls were more breathy and the boys' less metallic. (2) Whereas the pitch of the boys was again quite evenly distributed throughout the pitch range, the voices of the girls tended to be either high or low.

In the rhythm of the child's speech, jerkiness, prolongation of vowels, repetition on sounds, syllables, words, phrases, sentences, and the type of block, if any was present, was observed. Twenty children, ten boys and ten girls, the first semester, and eighteen children, eight boys and ten girls, the last semester, showed some disturbance in their rhythm. All of these children repeated sounds, syllables or words and many of them had both tonic and clonic blocks. The frequency and the severity of these repetitions and blocks, however, varied greatly. If we were to classify the severity of the disturbance in rhythm as to mild, average or severe, during the first semester, one boy would be classified as having an average disturbance and two as having a severe disturbance in rhythm. During the second semester one girl would be classified as having an average and two boys as having a severe disturbance. That is, during the first semester about one-seventh of those children manifesting some disturbance in rhythm showed an average or severe disturbance while the rest were mild; or that about one-ninth of all the children showed an average or severe disturbance. During the second semester, one-sixth of those children manifesting any disturbance and one-eighth of the total number of children observed displayed an average or severe rhythm disturbance. Much of the repetition which occurred was very similar to the babbling stage in the production of speech. Perhaps in many cases it was the

actual presence of, or the prolongation of, this stage in the speech development.

The speech sounds of the children were tested by a special picture articulation test. The original test consisted of 49 pictures which were presented to the child by a nursery school teacher. The word-responses obtained tested 66 consonant elements and combinations in the initial, medial and final positions. In this test several sounds were checked in many of the responses. For example, in the responses to a picture of a cat, both the initial k and the final t were checked. The revised test differs from the original in that (1) not only the consonant elements and combinations but also the vowels and diphthongs are being examined; (2) only one sound response is noted in each word response obtained from the child; and (3) there are 84 elements tested.

Although most of the pictures elicit the desired response when they are presented, we have activity pictures, and a few others which require a standardized question to obtain the desired response. For example, a picture in which children are blowing bubbles is accompanied with the question: "What are the children doing?" The desired response being studied here is the sound B at the beginning of the word. In the administration of the test, a nursery school teacher presents the picture to the child while the investigator listens for the one definite sound in the word response. If the child fails to make the desired response, the teacher asks "What is this a picture of?" If still no response is obtained, the teacher says, "This is a piece of pie." However, if the desired response is still not given, the teacher says, "Can you say pie?"

If the desired sound is made correctly and spontaneously by the child, the sound is checked. If the examiner says the word first, this is noted by a question mark. Any sounds that are substituted are transcribed phonetically to show the definite substitution. All defective sounds are recorded and described. The omission of any sound is designated by the use of a circle. If the child refuses to make any response, a dash is used. Besides the specific sound response of the child, his reaction to the picture is recorded. That is, we indicate whether the response was deliberate or impulsive. The test has been administered in one session, or it has been broken up into halves or thirds depending upon the interest span of the child. Whenever the child loses interest, becomes restless and turns his attention to activities other than those of the test, the test is discontinued for the time and resumed later. The nursery school teacher is the judge of the attitude of the child. The length of time that it has taken to administer the entire test varied from 7 to 40 minutes. The time necessary for the administration of the test, the exact time of the day, and the general activity and attitude of the child are all recorded.

Ninety-three tests have been administered to children ranging in age from 1 year, 11 months to 4 years, 9 months. The findings from the administration of the tests to date are incomplete. Keeping this in mind, however, we find that in none of the 93 tests have all

the sounds been made correctly in all positions. None of the children have uttered all consonants correctly in all positions, but several have pronounced all of the vowels and diphthongs correctly.

COMPARISON OF CORRECT, SUBSTITUTED AND OMITTED CONSONANTS

	INITIAL			MEDIAL		
	C	S	O	C	S	O
Nasals	75.5	2.5	.5	56.3	12.7	6.3
Plosives	73.3	6.0	.2	61.5	12.2	.7
Semi-vowels	52.5	20.0	1.0	50.3	17.0	18.3
Fricatives	49.8	34.1	.4	35.5	33.9	2.8
Combinations	49.5	34.0	.0	24.5	40.5	3.0
	300.6	96.6	2.1	228.1	116.3	31.1
	FINAL			ALL POSITIONS		
	C	S	O	C	S	O
Nasals	68.3	7.0	3.3	200.1	22.2	10.1
Plosives	51.2	10.3	14.9	186.0	28.5	15.8
Semi-vowels	34.0	23.5	19.0	136.8	60.5	38.3
Fricatives	31.6	34.5	9.1	116.9	102.5	12.3
Combinations	31.5	39.0	7.0	105.5	113.5	10.0
	216.6	114.3	53.3			

The number of consonant sound utterances have been reduced to a comparable unit, and classified according to nasal, plosive, semi-vowels, fricatives, and combinations. Disregarding the positions in which the sounds occurred and looking at the sounds in the various groups, we find that the nasal sounds were most frequently made correctly in all positions, with the plosives, semi-vowels, fricatives, and combinations following in respective order. The frequency with which other sounds were substituted for these various groups of sounds, however, is in exactly the inverse order. The combinations were most frequently substituted for, with the fricatives next and the semi-vowels, plosives and nasals following. In terms of a comparable unit the nasal sound, the highest, was made correctly 200.1 and the combinations, the lowest, 105.5. The combinations were substituted for 113.5, the fricatives 102.5, and the nasals 22.2 times. More semi-vowels were omitted than any other type of sound. When we look at these sounds in the initial, medial and final positions we find that all of the sounds were made correctly more frequently in the initial than any of the other positions. Disregarding the classification, and looking at the consonants as a group, the frequency of correct utterance is greatest in the initial, next in the medial, and lowest in the final positions. The plosive, semi-vowels, and fricatives follow this order, but the nasals and the combinations have slightly more correct utterances in the final than in the medial positions. The fewest sounds were substituted in the initial positions, while in the medial and in the final positions we find about equal substitutions, 116.3 for the medial and 114.3 for the final (expressed not in numbers but in terms of a comparable unit).

The Purdue Nursery school children, both in the vowels and in the consonants, uttered many more sounds correctly than did the

WPA children. The WPA children failed to respond on comparatively more words than the Purdue children The Purdue children were on an average 4.5 months older, but this factor alone does not seem to be enough to account for the great discrepancies in the correct utterance of sounds Not enough tests have been given to the WPA children—only 21 as compared to the 72 given the Purdue children—and we need to know many other factors, such as the comparable intelligence of the two groups The tests given, however, do show the Purdue children to be ahead of the WPA children in the correct utterance of sounds In none of the sound groups did the WPA children utter as many sounds correctly as did the Purdue children For example, equalizing the number of tests given to each group, the WPA children have 165.0 and the Purdue children 475.0 correct utterances on the nasal sounds in all positions, and the WPA children 92.4 substitutions and 62.7 omissions, while the Pudue children have 37 substitutions and 17 omissions for the same group of sounds. The substitutions and omissions are more frequent and the correct utterances less frequent for the WPA children

For the plosives the WPA children have 481.8 correct, 132 substitutions, and 75.9 omissions to the Purdue children 969 correct, 131 substitutions, and 71.0 omissions. In this group of sounds the correct utterance was low, due to the failure of some WPA children to respond. If, however, more of the children had responded, we would assume that since the omissions and substitutions between the two groups are now about equal, then these would have risen in the WPA group.

The WPA children omitted many more sounds than the Purdue children. Even though there are not an equal number of responses in all sound groups after the groups have been reduced to comparable units, still in the nasal, plosive, fricative, and combinations, the WPA children omitted more than the Purdue. Only in the semi-vowel group was this reversed. In none of the sound groups did the WPA children utter as many sounds correctly as the Purdue children. In the nasal group the WPA children substituted more sounds; in the plosive and the combinations the two groups were about equal; and in the fricative and semi-vowel the Purdue children substituted slightly more sounds than did the WPA group.

The vowels and diphthongs were not tested in the original test. More children make the vowels and dipthongs correctly than the consonants: i. e., there have been several children who have uttered correctly all the vowels and dipthongs tested.

In the vowels and diphthongs 21 WPA and 45 Purdue children are compared. If an equal number of children had been tested in each group, the Purdue children would have uttered the sounds correctly more frequently. Only on the ɛ as in men did the Purdue group utter fewer correct vowel sounds. In the vowels and diphthongs, unlike the consonant sounds, several children in both groups uttered all sounds correctly. The number of substitutions in the WPA group, however, is far greater. Only on one sound, the ɛ, are there fewer substitutions, and the others range from

about an equal number to 10 times as many substitutions on the vowel and diphthongs in the WPA group.

The vowels ʊ as in book, ɛ as in egg, ɝ as in bird, and the diphthong aʊ as in cow presented the fewest correct utterances in the tests. The u as in spoon, and the æ as in man were uttered incorrectly more frequently by the WPA group. The aʊ as in cow presents an interesting problem. We considered as substitutions the æu for the aʊ. About half of the Purdue and almost two-thirds of the WPA children exhibited this substitution. The question arises as to whether this should be considered a substitution. We in Lafayette are rather on the border between sections of the country where æu and aʊ are heard with about equal frequency.

Since these tests have been repeated at intervals, some of the children have been retested. None of the children in the WPA group have been retested. Although the test has been administered to the group twice, the personnel of the nursery school has changed so that none of the children have taken the test more than once. In the Purdue school, however, twenty children have taken the test twice, and five have taken the test three times. As would be expected, the number of correct utterances of all types of sounds has increased from test to test.

The third test taken by five children showed all the nasals and the combinations to be uttered correctly. The plosives and semi-vowels were omitted or substituted for very infrequently. Only the fricative sounds presented any considerable difficulty.

NUMBER OF CONSONANT UTTERANCES ON FIRST AND SECOND TESTS OF TWENTY PURDUE NURSERY SCHOOL CHILDREN

			Substituted			
First Test—	Correct	Defective	P	S	F	C
Nasals	132	1	5	1	1	1
Plosives	313	11	31	1	..	1
Semi-vowels	138	7	2	31	7	5
Fricatives	291	8	82	11	57	55
Combinations	61	1	18	1	13	36
Second Test—						
Nasals	133	..	..	..	..	2
Plosives	326	10	9	..	11	3
Semi-vowels	158	3	..	21	2	7
Fricatives	338	25	35	23	98	45
Combinations	86	2	3	..	6	26

The nasal sounds were most frequently made correctly in the first test and therefore show the least change in number of correct utterances—the increase being from 132 to 133, in the first two tests.

In the plosive group the number of correct utterances increased from 313 to 326. Most of the other categories remained about the same with the exception of the increase in the substitution of fricative sounds from 0 to 11 in the second test and the decrease in other plosive substitutions. The combinations increased from 61 to 86 correct utterances, but the substitution of the plosives decreased from 18 to 3. The fricative group presented the most difficulty

throughout all the tests and retests, as well as being very high in the frequency of incorrect utterance throughout the sound groups. It presents a very interesting picture. The number of correct utterances increased from 291 to 338 and the number of defective utterances of the fricative sounds increased from 8 to 25. The number of substitutions of other fricative sounds for the desired sound increased from 57 to 98, and the number of substitutions of plosives for a desired fricative sound decreased from 82 to 35. In looking over the individual tests, we found this type of progression. One child substituted a "d" and "n" for the "z" on the first test and substituted the "s" which is more closely related to the "z" on the second test.

Frequently in looking over the various tests it appears that the substitutions made by one child tend to approach the desired sound in type even though the response does not actually become the desired sound.

Information concerning the age of onset of speech, the number of children in the family, the position of each child in the family has been obtained and recorded. It is recorded whether the child has been sick a great deal, little or not at all. Handedness as reported, has been recorded, and also the age of onset of preference for one hand or the other. Notations have been made concerning the incidence of speech difficulties in the family. All this information has been obtained through the files of the nursery school or from the parents by the nursery school teachers. The children at the Purdue Nursery school were rated on eleven items from the Conrad rating scale for pre-school children. Three teachers rated each child on the following traits:

1. The amount of time spent in gross overt activity.
2. The amount of vocalization.
3. Behavior when thwarted by others about his own age.
4. Behavior response to difficulty.
5. Attacking behavior.
6. Insistence on rights.
7. Self-reliance with respect to adults.
8. Self-reliance with respect to other children.
9. Friendliness to other children.
10. Attempts at leadership.
11. Nervous habits.

It is hoped to determine the relationship, if any, between the speech development of the child and these factors concerning his personality, behavior, and environment.

As was stated at the beginning, this is merely a report of a portion of a larger study. Emphasis has so far been placed largely on the articulatory development, but an investigation of the development of pitch and other aspects in the development of speech in children is planned. In the entire study we hope to be able to determine the development of functional speech defects, with the ultimate hope of being able to work out a program of prevention rather than correction of these defects.

CHANGES IN THE ELECTION OF NEW MEMBERS

The Constitution of the A. S. C. A. was amended at Cleveland so that two, instead of ten Fellows, may recommend to the Council that a given Associate be promoted to Fellowship.

The Council has adopted the policy for the year 1939 of considering the promotion to Fellowship at the next annual meeting of any Associate whom any member of the Association may nominate through the Secretary well in advance of the Chicago Convention on December 27–30.

The member who sponsors the promotion of a given Associate to Fellowship must secure from the Secretary a printed Fellowship Application blank and be responsible for having this duly filled out and returned promptly with reprints of scientific articles published by the candidate, which may be presented to the Council with the application.

SECTION 3. The Council shall be limited in its consideration of candidates for Fellowship to such individuals as meet the following qualifications, but may waive the degree clause in certain cases providing the reason for such waiver is distinctly stated when the name is proposed for election:

1. Active present participation in actual clinical work in speech correction or in administrative duties immediately concerned with the supervision and direction of such work.

2. Possession of a Master's, M.D., Ph.D., or D.D.S. degree in securing of which degree important work shall have been done in the physiology of speech or its disorders or some closely allied subject, as in psychology, phonetics, mental hygiene, psychiatry, or medicine.

3. Either publication of outstanding original research in the form of a monograph, magazine article, or book, *or* other outstanding achievement in the study or correction of disorders of speech.

4. Possession of a professional reputation untainted by a past or present record of unethical practices as defined by the Association's Principles of Ethics.

The Council voted, furthermore, to hold every Fellow personally responsible to see that every person whom he nominates for Associateship qualifies. Fellows should not countersign applications for other Fellows unless they are personally acquainted with the standards for Associateship to which the other signatory adheres. It is impossible to give definite standards for the qualification for Associateship because the Educational Committee has never defined these adequately. This Committee suggests a Bachelor's degree or the equivalent and a position in the field of speech correction; yet a reasonable number of courses in speech pathology and a reasonable amount of clinical practice should be expected.

The Association needs all the high grade Associates it can get; those who train speech pathologists are requested to keep a supply of Associateship application forms on hand (available from the Secretary) and pass them out to high grade students.

SAMUEL D. ROBBINS, *Secretary.*

STUDIES IN THE PSYCHOLOGY OF STUTTERING, XIII.

A Statistical Analysis of the Adaptation and Consistency Effects in Relation to Stuttering

WENDELL JOHNSON AND MARJORY INNESS
University of Iowa

I. Introduction

In this study an attempt was made to answer the following questions:

1. What is the degree of the stutterer's adaptation to the reading situation as indicated by change in the frequency of stuttering from one 180-word segment to another of a 900-word passage?

2. What is the degree of the stutterer's adaptation to word content as indicated by change in the frequency of stuttering from one reading to another of a 180-word passage?

3. To what degree are the loci of stuttering consistent in five successive readings of the same passage?

In a previous study, Johnson and Knott (1) found, among other things, that to a marked degree the loci of moments of stuttering were consistent from one to another reading of the same material, and that frequency of stuttering decreased in successive readings of the same material.

The consistency effect (tendency for loci of stuttering to remain constant from reading to reading of identical material) has also been noted by Johnson and Millsapps (3), Johnson and Sinn (4), and Maddox (6). Johnson and Ainsworth (5) have also reported that the experience referred to as "expectation of stuttering" tends to occur at the same loci in repeated inspections of material read silently, when the stutterer is instructed to indicate words on which "he thinks he would stutter if he were to read the passage within five minutes."

Van Riper and Hull (7) found that frequency of stuttering decreased in successive readings of identical material. This adaptation effect has been noted also by Johnson and Knott (1), Johnson and Millsapps (3), and Maddox (6).

The present study was done in order to bring together a sufficient amount of data on the adaptation effect and the consistency effect to make possible reasonably conclusive statistical statements concerning them. Such statements are desirable not only because the effects have obviously significant theoretical implications, but also because they should be taken into account or allowed for as accurately as possible in certain types of studies.

Table II also gives the results for 16 subjects (Johnson-Knott study). The total reduction here is from 13.6 per cent in the first reading to 7.2 per cent in the fifth, which gives a reduction of 46 per cent. Table II also shows that for 25 subjects (Maddox study) the reduction is from 14.2 per cent in the first to 7.3 per cent in the fifth reading, which is a reduction of 50 per cent.

These data indicate that the number and per cent of stuttered words decreases more in successive readings of the same material than in passing from one segment to another of a longer reading passage: that there is more adaptation to the word content of the reading passage than to the reading situation.

In Tables I and II, we found that the total per cent of stuttered words was reduced 18.9 per cent for the 180-word segments of the 900-word passage, and 48.9 per cent for the five readings of the same passage. Further analysis was made in order to find the per cent of adaptation from one reading to the next and from one segment to

TABLE II

NUMBER AND PER CENT OF STUTTERED WORDS IN FIVE SUCCESSIVE READINGS OF THE SAME 180-WORD PASSAGE BY 16 SUBJECTS (JOHNSON-KNOTT STUDY), 25 SUBJECTS (MADDOX STUDY) AND ALL 41 SUBJECTS

Totals	Reading 1		Reading 2		Reading 3		Reading 4		Reading 5	
	No.	%	No.	%	No.	%	No.	%	No.	%
16* Subjects	392	13.6	307	10.6	269	9.3	226	7.8	210	7.2
25† Subjects	662	14.7	492	10.9	393	8.7	379	8.4	328	7.3
41‡ Subjects	1054	14.2	799	10.8	662	8.9	605	8.1	538	7.2

*Number of words read, each reading, 2,880; total, 14,400.
†Number of words read, each reading, 4,500; total, 22,500.
‡Number of words read, each reading, 7,380; total, 36,900.

the next in the 900-word passage. First, readings (or segments) one and two, one and three, one and four, and one and five were compared. The formula used was $(x-y)/x$=per cent of adaptation, in which x represents the number of words stuttered in reading one, and y the number of words stuttered in reading two, three, four or five, whichever one is being considered.

The per cent of adaptation was also found between one segment or reading and the one immediately preceding it. The formula used was again $(x-y)/x$=per cent of adaptation, in which x represents the number of words stuttered in any given segment and y represents the number of words stuttered in the segment immediately following segment x.

Table III shows the per cent of adaptation in successive 180-word segments of the 900-word passage for each of 31 subjects.

Table IV shows the per cent of adaptation in five successive readings of the 180-word passage by each of 16 stutterers (Johnson-Knott study), 25 stutterers (Maddox study), and all 41 stutterers.

Table V gives the critical ratios for the total differences between segments one and two, three, four, and five, respectively, and the

TABLE III

PER CENT OF ADAPTATION IN SUCCESSIVE 180-WORD SEGMENTS OF A 900-WORD PASSAGE READ ORALLY BY 31 SUBJECTS; IN LEFT HAND COLUMN SEGMENT 1 COMPARED WITH EACH OF THE OTHER SEGMENTS; IN RIGHT HAND COLUMN EACH SEGMENT IS COMPARED WITH THE ONE FOLLOWING IT

	% Adaptation*		% Adaptation
Segments 1 and 2	—6	Segments 1 and 2	—6
Segments 1 and 3	13	Segments 2 and 3	17
Segments 1 and 4	21	Segments 3 and 4	10
Segments 1 and 5	19	Segments 4 and 5	—3

*Per cent of adaptation = x–y/x, in which x represents the number of words stuttered in reading one, and y the number of words stuttered in reading two, three, four, or five, whichever one is being compared.

Number of words read, each segment, 5,580; total, 27,900.

TABLE IV

PER CENT OF ADAPTATION IN FIVE SUCCESSIVE READINGS OF THE SAME 180-WORD PASSAGE BY 16 SUBJECTS (JOHNSON-KNOTT STUDY), 25 SUBJECTS (MADDOX STUDY) AND BY ALL 41 SUBJECTS. READING 1 IS COMPARED WITH EACH OF THE OTHER READINGS, AND EACH READING IS COMPARED WITH THE ONE FOLLOWING IT

	% Adaptation		
	16 Subjects*	25 Subjects†	41 Subjects‡
Readings 1 and 2	22	26	24
Readings 1 and 3	31	41	37
Readings 1 and 4	42	43	43
Readings 1 and 5	46	50	48
Readings 2 and 3	12	20	17
Readings 3 and 4	16	4	8
Readings 4 and 5	7	13	11

*Number of words read, each reading, 2,880; total, 14,400.
†Number of words read, each reading, 4,500; total, 22,500.
‡Number of words read, each reading, 7,380; total, 36,900.

TABLE V

CRITICAL RATIOS (D/σ DIFF.) OF DIFFERENCES BETWEEN SPECIFIED READINGS WITH REFERENCE TO PER CENT OF STUTTERED WORDS

	Segments 1 and 2	Segments 1 and 3	Segments 1 and 4	Segments 1 and 5
31 Subjects	—1.32*	2.54	4.03	3.50
	Readings 1 and 2	Readings 1 and 3	Readings 1 and 4	Readings 1 and 5
41 Subjects	6.18	10.1	11.5	13.7
	Segments 1 and 2	Segments 2 and 3	Segments 3 and 4	Segments 4 and 5
31 Subjects	—1.32*	3.89	1.49	—.55*
	Readings 1 and 2	Readings 2 and 3	Readings 3 and 4	Readings 4 and 5
41 Subjects	6.18	3.87	1.77	2.04

*Negative adaptation, that is there was more stuttering in the second than in the first, and more in the fifth than in the fourth.

differences between readings one and two, three, four and five, respectively. Table V also gives the critical ratios for the total differences between segments one and two, two and three, three and four, and four and five, respectively, and readings one and two, two and three, three and four, and four and five, respectively.

TABLE VI

CRITICAL RATIOS (D/σ DIFF.) FOR THE TOTAL ADAPTATIONS DURING THE FIVE SEGMENTED READINGS VERSUS TOTAL ADAPTATIONS DURING THE FIVE READINGS OF AN IDENTICAL PASSAGE

Segments 1 and 2 vs. Readings 1 and 2	50
Segments 1 and 3 vs. Readings 1 and 3	33.3
Segments 1 and 4 vs. Readings 1 and 4	27.8
Segments 1 and 5 vs. Readings 1 and 5	37.1
Segments 1 and 2 vs. Readings 1 and 2	50
Segments 2 and 3 vs. Readings 2 and 3	0
Segments 3 and 4 vs. Readings 3 and 4	3.9*
Segments 4 and 5 vs. Readings 4 and 5	32.5

*In this one, the difference is in favor of the segmented readings of the long passage, but in all of the others it is in favor of the readings of the same passage.

TABLE VII

CONSISTENCY INDEXES WHICH INDICATE THE CONSISTENCY OF STUTTERING AT THE SAME LOCI IN FIVE SUCCESSIVE READINGS OF THE SAME 180-WORD PASSAGE BY EACH OF 16 SUBJECTS (JOHNSON-KNOTT STUDY), 25 SUBJECTS (MADDOX STUDY), AND ALL 41 SUBJECTS. EACH READING IS COMPARED WITH ALL OF THE PRECEDING READINGS; EACH READING IS ALSO COMPARED WITH THE ONE IMMEDIATELY PRECEDING IT

	16 Subjects*	25 Subjects†	41 Subjects‡
Reading 2 vs. 1[2]	67	66	66
Reading 3 vs. 1 and 2[1]	68	64	64
Reading 4 vs. 1, 2 and 3[1]	66	68	68
Reading 5 vs. 1, 2, 3 and 4[1]	69	58	58
Reading 3 vs. 2[2]	68	65	66
Reading 4 vs. 3[2]	71	60	63
Reading 5 vs. 4[2]	94	60	72

*Number of words read, each reading, 2,880; total, 14,400.
†Number of words read, each reading, 4,500; total 22,500.
‡Number of words read, each reading, 7,380; total, 36,900.

[1]The formula used was x/y in which x represents the number of times the words stuttered in reading x were stuttered in all previous readings, and y represents the number of times these words could have been stuttered in all previous readings.

[2]The formula used was x/y, in which x represents the number of times words stuttered in one reading were stuttered in the previous reading, and y represents the number of times these words could have been stuttered in the previous reading.

Table VI gives the critical ratios for the total adaptations during five segmented readings versus total adaptations during the five readings of an identical passage. For instance, from Table III, we see that the per cent adaptation between segments one and two is

negative 6, and the per cent adaptation between readings one and two as given in Table IV is 24. The critical ratio (Table VI) of the difference between these two is 50, showing the difference to be very significant. The same comparison is made between the other specified pairs in Table VI. In general, there is significantly more adaptation in the readings in which the word content remains constant.

Consistency Effect

In order to have a definite measure of the degree to which the loci of stuttering remain constant from reading to reading, consistency indexes were computed. This was done by comparing the words stuttered in one reading with the words stuttered in all previous readings. The formula used was x/y, in which x represents the number of times the words stuttered in reading x were stuttered in all previous readings, and y represents the number of times these words could have been stuttered in all previous readings.

Consistency indexes were also found by comparing one reading with the one immediately preceding it. That is, readings one and two, two and three, three and four, and four and five were compared. The formula used was x/y, in which x represents the number of times words stuttered in one reading were stuttered in the previous reading, and y represents the number of times these words could have been stuttered in the previous reading.

Table VII shows the consistency indexes that were obtained. The mean consistency index for 41 subjects is 64, when a given reading is compared with all readings preceding it, and 66 when each reading is compared with the one reading preceding it.

These data indicate that there is a marked tendency for the loci of the moments of stuttering to be constant from reading to reading of the same material.

IV. Summary and Conclusion

The results of this study give significant evidence that stutterers adapt to the word content of a reading passage more than to the reading situation. There was a total adaptation of 48 per cent, (*i. e.*, 48 per cent fewer stuttered words) between readings one and five of a given passage, for 41 stutterers. The critical ratio of the difference between reading one and reading five, represented by the above 48 per cent adaptation, is 13.7, which shows that the difference is certainly significant. This indicates that only five readings are necessary to get a significant adaptation effect. More than five readings would be necessary, however, in order to obtain a relatively complete measure of the effect, since in the present study there was an 11 per cent adaptation from reading four to reading five.

There was a total adaptation of only 18.9 per cent between the first and fifth 180-word segments of a 900-word passage, for 31 stutterers. The critical ratio of the difference represented by this 18.9 per cent is 3.5, which indicates that the difference is statistically significant. It is to be noted, however, that greater adaptation occurred when the word content remained constant.

The results of this study also show that there is a marked tendency for the loci of moments of stuttering to remain constant from reading to reading of the same material. The data show that the mean consistency index for 41 subjects is 64 (computed by means of a slightly different formula, it is 66): about two-thirds of the words stuttered in a given reading of a passage are words that have been stuttered in one or more previous readings of the passage. This tendency to stutter on the same words in successive readings of a given passage indicates that there must be some semantic reason for reacting to those certain words. This raises the question as to what it is about those particular words that precipitates this reaction. Johnson and Knott (1) found that all stutterers do not have difficulty on the same words, which suggests that the different words must in themselves carry meanings and significance that vary among the individuals. That is, one word must have a meaning and a significance to a certain person that is powerful enough to make that person react by doing that which we call stuttering, while to another person that same word is of no such consequence. Moreover, as the adaptation effect indicates, the stimulus value of a given word for a given individual varies sufficiently to call forth stuttering reactions at one time and not at another.

All these findings, taken together, indicate that the stutterer not only adapts more to the word content of what he reads than to the situation in which he reads, but also that he adapts more readily to some words—or to some "spots on the page"—than to others.

The data presented here may be regarded as constituting statements of norms for the adaptation and consistency effects. It goes without saying that such norms are to be interpreted judiciously and always in a relative sense. So interpreted, the norms will make possible more adequate consideration of any studies or problems in which the adaptation and consistency effects are involved.

BIBLIOGRAPHY

1. **Johnson, W.**, and **Knott, J.** Studies in the Psychology of Stuttering: I. The distribution of moments of stuttering in successive readings of the same material. *J. Speech Disorders*, 1937, 2, 17–19.
2. **Johnson, W.,** and **Brown, S. F.** Stuttering in relation to various speech sounds. *Quarterly J. Speech*, 1935, 21, 481–496.
3. **Johnson, W.**, and **Millsapps, L. S.** Studies in the Psychology of Stuttering: VI. The role of cues representative of past stuttering in the distribution of stuttering moments during oral reading. *J. Speech Disorders*, 1937, 2, 101–104.
4. **Johnson, W.**, and **Sinn, A.** Studies in the Psychology of Stuttering: V. Frequency of stuttering with expectation of stuttering controlled. *J. Speech Disorders*, 1937, 2, 98–100.
5. **Johnson, W.**, and **Ainsworth, S.** Studies in the Psychology of Stuttering: X. Consistency of loci of expectancy of stuttering. *J. Speech Disorders*, 1938, 3, 101–104.
6. **Maddox, J.** Studies in the Psychology of Stuttering: VIII. The role of visual cues in the precipitation of moments of stuttering. *J. Speech Disorders*, 1938, 3, 90–94.
7. **Van Riper, C.**, and **Hull, Catherine.** Effect of certain situations on stuttering. *Psychol. Clinic*, in press.

THE YEAR 1938 IN SPEECH CORRECTION

SARA STINCHFIELD-HAWK, Ph.D.
University College, University of Southern California,
Los Angeles

When in the course of human events it becomes necessary to review in half an hour the year 1938 in speech correction, one finds that it is a greater task than appears on the surface. Speech correction can no more be isolated from tangent fields and considered as a separate entity, than can the functions of the brain be sharply separated from the physiological functions of the rest of the body. Our field touches upon publications, not only in speech pathology, as such, but on child psychology, adolescent and adult psychology, anatomy and physiology, biology, eugenics, euthenics, social psychology, psychoanalysis, dramatics, creative thinking, creative writing, interpretation, public speaking and private speaking in all of its phases.

The trend in speech everywhere is towards integrating this field with all other fields. It enters into every relationship and every walk of life, and into every language.

Not all books in this field turn out to be equally interesting, or instructive. Many authors limit themselves to minute examination of one phase of the subject while others seem to try to include every phase that I have mentioned, which is a Herculean and probably impossible task.

I shall touch upon only a very few representative phases of speech correction including those to which I have had access and which I have been able to locate in the time when I have had opportunity to read. They will at least suggest sources for additional reading and show something about present day trends in this field. Important omissions may still be included in the printed edition of this paper.

First, in the "Journal of Speech Disorders" for the year 1938, we find articles American and European varying from the March number which centers about stuttering, psychological and physiological, to the most recent number which contains several doctors' theses. Palmer and Gillett, from the Flo Brown Memorial Laboratory, University of Wichita, have recently published a number of articles, one of which deals with sex differences in the cardiac rhythms of stutterers. Using a control group of stutterers and normals, they have made a study of cardiac rhythms of both sexes and find a larger increase in irregularity of rhythms in male stutterers which they believe to be due to some difference in sex metabolism in males and females. The speed of the pulse is not quite the same for age level, stuttering, normal speaking and sex. While increased irregularities of heart beat are not causes of stuttering, they seem to be a by-product of a sex linked mechanism involved in stuttering. Male stutterers have

more irregular pulse rates than female stutterers, and both male and female stutterers have more irregular pulse rates than do the controls.

Also, in the March number there appears an article on the common denominator in twinning and stuttering by Mildred Berry, of Rockford College. Miss Berry has studied data on twinning families, under a grant from the Wisconsin Research Foundation, including some 500 children. She finds a greater frequency of left handedness, delayed speech, and stuttering in the twinning families which points toward the theory of the inheritance of stuttering. The question is raised as to whether or not twinning and stuttering may both be connected with vitamin metabolism.

Doctor Solomon, from the Northwestern University Medical School, writes on the Psychology of Stuttering, this being a paper which was given at the October meeting of our Association in Chicago in 1937. Dr. Solomon concludes that combinations of factors which produce over-stimulation and emotionality may induce stuttering at the more susceptible periods of life. He believes it is linked up with metabolic conditions. He defines stuttering as an emotional and personality speech disorder, showing itself in an anxiety state concerning social speaking, involving social maladjustment as apparent in speech block, hesitation and repetition.

Suzanne Borel-Masonny has written an article on education and re-education, based upon her hospital service, in which she defines the difficulties of articulation and their corrections, retardation and re-education, the child's conception of meanings and the child's expression through speech. She outlines methods for training the child in comprehension, in language understanding, in sound analysis, musical acuity, motor exercises among pre-school children and concludes with a discussion of normal speech. She finds that faults in articulation and in voice may be easily corrected where there is no organic involvement.

Mildred Templin from Purdue University, gives a study of aggressiveness in Normal and Defective Speaking College Students in which she finds that definite speech training increases the tendency toward aggressiveness and self-expression in college students. She finds no correlation between aggressiveness and scholarship, but normal speakers tend to have slightly higher grade averages than defective speakers. The stutterer tends to be more aggressive than the voice defective, and the voice defective more aggressive than the articulatory defective. She found the more aggressive speech defectives to be more co-operative than the articulatory defective.

The September number of the "Speech Disorders Journal" for 1938 contains three studies which represent doctor's theses at the University of Iowa. The first is Moser's Qualitative Analysis of Eye-Movements During Stuttering, a study undertaken to see whether there is a difference in eye movements of stutterers and normals during silence and speaking. Many film records of the eyes are included, showing the binocular photography of horizontal and vertical eye-movements and of head movements. The results show that the so-called stuttering spasm includes other muscles than those

commonly spoken of as controlling the speech mechanism. There were abnormal eye-movements accompanying the stuttering spasm. Their studies support the theory that stuttering is a generalized neuro-muscular derangement and shows a close connection between Broca's areas in the brain and associate centers for conjugate eye-movements.

Morris, Junior College of Kansas City, has written upon "Position as a Factor of Attentional Clearness in Relation to Stuttering." Using the Iowa Laterality index, he studied right, left and ambi-dextrous groups of students at University of Maine, ranging in age from 18 to 45, normals and stutterers. He used the Dallenbach apparatus to test position and intensity, the Miles vision test cards, and adapted hole-in-card sighting test, a convergence test, star tracing, and Van Riper critical-angle board. The tests were inter-correlated and with the exception of Dallenbach position versus intensity all correlations were positive. The study affirmed Dallen-bach's findings that position is a determining factor in clearness. The adapted hole-in-card sighting test was one of the most satisfactory used. The convergence strength test and the star-tracing test gave important indications and the critical-angle board was found impor-tant. This battery of tests gives some reliable diagnostic indications and shows the need of a carefully selected battery of tests of sidedness in relation to nervous organization.

Wilbur Moore has discussed the conditioned reflex in relation to stuttering. This is an examination of Bluemel's theory as to the relationship between stuttering and conflict caused by a conditioning of speech reflexes and inhibitions of such reflexes. Eighteen stutterers and seventeen control speakers were studied. Their results vary from those of Bluemels as they found that conditioning the speaker hastened rather than inhibited the response in about 40% of the stutterers and 30% of normal speakers. An unpleasant conditioning of a speech symbol, by means of an electric shock affected both stutterers and normal speakers about equally.

In the June number appears an article by Nadoleczny, University of Munich, printed in German and also in English, describing the life of Carl Stumpf, philosophical psychologist, who died recently. An article of special interest is Robert West's, on the function of speech pathologists in studying cases of speech dysphonia. At the University of Wisconsin they found that voice pathology may be a matter for the laryngologists and for the psychiatrists as well and that it is dangerous for the teacher of speech to teach such, without adequate co-operation of the specialist.

Wendell Johnson discusses the role of evaluation in stuttering behavior and several papers from the Iowa laboratory appear, including Van Riper's "Study of the Stutterer's Ability to Interrupt Stuttering Spasm." Studies in the psychology of stuttering by Johnson and Ainsworth follow. Another by James Maddox on the role of visual cues in the precipitation of stuttering. From North-western University comes Carhart's article on two room technique in the treatment of stuttering. This is an attempt to investigate meth-

ods of merging favorable into unfavorable situations for the stutterer in order to uncondition him and to increase his fluency in the audience situation so that it may compare with his fluency when alone.

A combination of gradually conditioning the stutterer to the presence of additional auditors, with mental hygiene treatment, increased the fluency of the experimental cases studied.

For further studies of problems of speech in relation to vocal derangements, motor co-ordinations, and neuromuscular activities the reader is referred to Volume III, of Psychological Monographs, No. XXII, 1937, which appeared this year. This contains nine doctor's theses from the University of Iowa, with a foreword by Dr. Travis of our own group. The volume centers about problems in stuttering. Gardiner has studied the pupilary reflexes in relation to stuttering. Hunsley, dysintegration in the speech musculature of stutterers during the production of a non-vocal temporal pattern. Morley has studied associative and predisposing factors in the symptomatology of stuttering. Struther has discussed the extent of dyssynergia occurring during the stuttering spasm. Bagchi presents experimental studies with respect to speed of movement and latency, disparate and reciprocal innervation, attention and relaxation. Hilden using the action current techniques has studied the effect of conditioned responses. Patterson also working with action currents has studied certain muscle groups during reflex activity. Millisen discusses the effect of training upon preferential handedness of the rat during eating. Van Riper presents the influence of empathy on frequency of stuttering.

Other journals of the year which give witness to the increasing interest in speech disorders are those included in the little magazine called "Speech" for the elementary school teacher, published in Chicago. This is a compilation of articles appearing monthly, intended for the use of the school room teacher. Some of the articles are abstracts of convention speeches, artistic and corrective, methods for dealing with children having articulatory difficulty or stress, playlets, selections for choral speaking, and for speech activities in the classroom, dramatics and interpretation are included.

Of special interest to us are Stanley Jacques' stories of stammering, Mueller's pre-school training for cleft palate speech, Henderson's voice of the adult lisper, Neville's choral speaking as an aid to speech improvement.

A new journal, the official organ of the W. A. T. of S., is appearing regularly now, called Western Speech. The most recent number discusses the Seattle convention, contains several book reviews, personal articles and several short articles on drama, stage fright, pronunciation and discussion groups.

The Quarterly Journal of Speech contains a section devoted to speech correction, one on voice science, and one on psychology which are interesting to us. In the October number is an article by Spencer Brown, University of Minnesota, which represents his studies in research at Iowa under Dr. Travis, on stuttering in relation to various speech sounds. He found a general phonetic factor of dif-

ficulty in stuttering on certain sounds, individual patterns of difficulty on sounds were stronger than group tendencies.

Allen Reed has discussed speech defects and mannerisms among slaves and servants in Colonial America in a delightful article in which he quotes from advertisements for runaway slaves in Colonial time. It would appear from his article that there was much stuttering on the plantations of a few generations ago.

Merle Ansberry has discussed under voice science, the effect upon the ability to discriminate between speech sounds by elimination of frequencies above 4,000 cycles. This paper from Arizona State Teachers College represents experiments with 200 pairs of words read to thirty-two unselected adults with normal hearing. They show which vowels were most difficult to discriminate. Vowels were more intelligible than consonants. There was no great difference between hearing with a speaker and with earphones. Transmission systems which were best for vowel transmission were least efficient for consonants and the consonants were most intelligible with arrangements through which the vowels were least so. When frequencies above 4,000 were eliminated English speaking persons had no difficulty in understanding or discriminating between different speech sounds.

Dusenberry and Knower from Itasca Junior College and University of Minnesota, have begun a series of studies of symbolism of action and voice. This first study in the October number of the quarterly journal is a study of the specificity of meaning in facial expression. This is an analysis of the extent to which action, facial expression, vocal quality, alone can communicate meaning and emotion. Four groups of college students served as subjects, consisting of several hundred in all. Percentages of correct judgments for emotions for trade through these various avenues were analyzed and these conclusions were drawn: (1) that facial expression is highly reliable as an index of emotional tendencies and attitudes; (2) there are wide individual and group differences in ability to correctly interpret facial expression of emotions; (3) women are more accurate in this interpretation than are men; (4) patterns of facial expression on a short moving picture film may be judged more accurately than still photographs; (5) accuracy in interpretation of facial expression is influenced by conditions under which expressions are judged.

In the December number, Carhart continues his studies on evolution of the speech mechanism by comparative anatomy, tracing the development of the speech mechanism through the various geologic ages to the appearance of modern man. Bryngelson, University of Minnesota, has written on the interpretative symbol. In addition to visible and audible symbols in speech which are used to impress one's audience the author adds a third symbol which has to do with personality traits in the speaker. He calls this the interpretative symbol. He feels that self analysis is important to the normal development of the average student and that a better understanding of himself will make him a more valuable member of society. He stresses the importance of speech hygiene which should begin with the teacher. He feels that we need not only class contacts with

students along traditional lines, but to give them emotional hygiene and the understanding of speech as the world's greatest hope for a more rational and peaceful existence. The reader is much impressed with the sound common sense of this article.

Charles Voelker, under the head of Phonetics, has given us another of his interesting articles under the title "Are Africates Elemental Phonemes?" The author believes that Ch and J should not be considered single phonetic elements, but more like diphthongs which combine the phonetic elements (t) and (ch) and (d) and (zh).

Nylen has written from the Seattle schools on "Guidance and Speech in the School Program." He shows the importance of making use of child guidance clinics and other psychological clinics in order to secure the needed individual attention for each child, and for the development of a remedial program.

Jerome and Steer, from Purdue University, have summarized speech correction facilities in colleges and universities in Indiana. While they found 85% of the institutions favoring the treatment of speech defects in the universities, 80% of these did not have a speech clinic and 70% had no speech pathologist or anyone trained in the fundamentals of speech correction. The survey indicated that the time is ripe for programs in speech correction but that so far few of the universities of higher learning in the state are equipped to handle speech correction problems although they recognize the great need for speech clinical work and for more teachers in this field.

Two journals to be mentioned in passing which occasionally touch upon our field are: "The Crippled Child," a journal for the International Society for Crippled Children, published bi-monthly, in Elyria, Ohio, and "The Child," a monthly news summary from the Children's Bureau, Department of Labor, Washington. These journals should perhaps be used by our people more frequently.

A review of Psychological Abstracts from January to November reveals many articles under childhood and adolescence, social processes, psychoanalysis, functional disorders, personality and character, which are especially important in our field. It is essential for any graduate student working in the field of speech disorders to comb the files of psychological abstracts, past and present, very thoroughly in order to secure information regarding the work in this and tangent fields at home and abroad. Unfortunately there is not time to review these articles in this paper.

As for books, one of the outstanding books of the year is Bender and Kleinfeld's "Principles and Practises of Speech Correction," Pitman Pub. Corp. This book contains much useful material and discusses the application of psychological principles and mental hygiene to speech correction. It gives the student a good working knowledge of the anatomy and physiology of the vocal organs with diagrams, extensive bibliographies and inventories of personality studies. It is one of the outstanding books of the year for general clinical use, for parent, teacher, and patient.

Jon Eisenson has produced a Psychology of Speech, F. C. Crofts & Co., N. Y., stressing the interrelation between psychology and

pathology of speech and personality. He stresses these particularly. He follows the traditional custom of discussing nature and origins of speech, physiology of speech, and psychological aspects of normal development. He then discusses deviations in speech and behavior as in the psychoses, in aphasics and in specially handicapped children. He concludes with the psychology of the audience. One might say that from his citations the author believes that the United States is bounded on the West by the Hudson River as he rather ignores much of the important research of the central and western states.

Another book useful for the teacher dealing with the dysphonia or voice disorders is that by Frederick Orr, University of Washington, called "Voice For Speech," McGraw-Hill Book Co. The author here seeks to enable the student to understand the psychological factors involved in voice production and to be self-critical and self-analytical. The anatomy of the vocal organs and diagnosing of vocal difficulties are discussed, abnormalities in voice production are described and a corrective program suggested. Professor Orr has combined artistic and corrective speech training in a delightful and useful way.

Another book which appeals to the student is "Your Speaking Voice," by Karr, of University of California at Los Angeles. This is published by Griffin-Patterson Publishing Company, Glendale, California. This is also a text on voice development and personality with methods for voice improvement. The author discusses the elements in speech as represented in rate of utterance, volume, pitch variation. Several chapters stress quality of tone, rhythm, resonance and breath control. Radio speech is dealt with and a good many practise exercises included. This is a manual which might prove useful to the speech clinician after more serious difficulties have been corrected in the speech clinic as it leads into the field of interpretation and dramatics.

Rand McNally & Company are constantly publishing books for the beginner in speech and reading which are a part of the series called "Happy Road to Reading," many of which motivate the child of preschool age in talking about his experiences. Expression Company of Boston has just published a new series of Speech Cards for Diagnosis of Speech Errors, as well as a delightful series of speech games dealing with phonetics in a way which is especially appealing to the small child. These are by Genevieve Arnold and meet a long felt need in this field.

The ninth yearbook of the Western Association of Teachers of Speech has been announced by Editor Elwood Murray under the head of "Speech As a Social Integrator" dealing with fifteen different topics prepared for the Denver Conference of 1937. Other articles in state zones such as Michigan, Iowa, New York, Minnesota, Washington, Oregon, California, Missouri, Illinois, Wisconsin, are to be found in state journals describing meetings held by local groups, and may best be obtained from reference to leaders in those states.

There are three texts in the field of mental hygiene, psychiatry and physiology recently off the press which should be known to our speech clinicians. One of the outstanding contributions is that of one of our own number, Dr. C. S. Bluemel of Denver. His book called "The

Troubled Mind" is from the Williams and Wilkins Press. You would be interested in the chapter on fixed ideas and reactions as this contains an important discussion of the significance of symbols, visual, auditory, spoken and written.

Under phobias and fears are discussed a variety of causes which undoubtedly influence speech and there is a valuable chapter on his theories regarding the conditioned reflex and inhibition. The chapters dealing with the psycho-neuroses of adult life should be read by those who have to do with stutterers. Part V dealing with clinical types of inhibitions such as hysterical paralysis, temporary deafness, blindness and loss of speech are of especial interest; they discuss aphonia, dysphonia, epilepsy, stammering, hysteria and other psycho-neurotic manifestations. The psychopathic and infantile personalities are discussed. The patient's part in therapy concludes the volume. This book should find a wide use in the hands of the specialist and the reader who can objectively apply its suggestions.

"The Home in a Democracy," by Martin and deGruchy, Harr Wagner Publishing Company, San Francisco, is an excellent book on child guidance for parents who are disturbed by present day conditions. The chapter on stammering is useful for the teacher of speech as it gives some case histories, methods of dealing with such children in the home and a sane analysis of causal factors which the average parent can understand and appreciate. It is a useful book to place in the hands of parents who seek better understanding of their child's emotional life, habit development, play, discipline and daily program.

One of the most recent texts in the field of physiology and neurology is Fulton's "Physiology of the Nervous System, Oxford University Press. It is new in its increasing emphasis on functions of the organism rather than on specific anatomical parts. It stresses movements rather than muscles. For recent developments in neuroanatomy the student of the physiology and neurology of speech would find this book especially useful.

Guthrie, University of Washington, has published "The Psychology of Human Conflict," Harper & Brothers, which deals with associative learning, habit, motives, interest and personalities. The nervous breakdown is analyzed. The family as a source of conflict is also discussed in an interesting and practical way.

From MacMillan Company comes Alexandra Adler's "Guiding Human Misfits." As the daughter of Alfred Adler, the exponent of individual psychology, she deals with the neuroses of childhood, psychology of adolescents, roots of criminality and practical aspects of child guidance and therapy. This is an excellent treatment of individual psychology.

Freud's recent book on psychotherapy, Garden City Publishing Company, is a translation from the German. Useful to the speech worker are his treatments of slips of the tongue, slips of the pen, word associations, wit, influence of the unconscious, sublimation and the psychology of errors.

There is an extensive literature which has appeared during the year in the field of reading disabilities. Among them are articles on

reading disabilities which fill several volumes of a magazines called "Pittsburgh Schools," published by the board of education, Pittsburgh, containing many articles on experimentation and re-education of reading disability cases in the Pittsburgh schools. Many of these articles stress the work of Dr. Marian Monroe, director of remedial reading, in their schools, and a member of our own association. Her book on Remedial Reading which appeared late in 1937, Houghton, Mifflin, should be known to every speech teacher dealing with remedial reading cases.

I was asked to mention another book which has appeared this year, from the Stanford University Press. Naturally it happens to be the one about which I am best informed, as it is based on the work of Edna Hill Young and myself in Los Angeles, with pre-school children and nursery school groups. It is called "Children with Delayed and Defective Speech." It includes considerable research work on audiometer tests, mental states in relation to chronological age in a group of speech defective cases, results of physical examinations and analysis of speech tests with relation to sound frequencies, phonetic difficulty, etc. The re-education of the child by motokinaesthetic training is described and illustrated by pictures from 35 mm. films, which I shall describe at another section meeting. It is a beginning of researches on the speech of the pre-school child, under a grant from the Rockefeller Foundation.

The American Physicians' Art Association composed of members in the United States, Canada, and Hawaii, will hold its second Art Exhibit in the City Art Museum of St. Louis, May 14–20, 1939, during the annual session of the American Medical Association. Art pieces will be accepted for this art show in the following classifications: (1) oils both (a) portrait and (b) landscape; (2) water colors; (3) sculpture; (4) photographic art; (5) etchings; (6) ceramics; (7) pastels; (8) charcoal drawings; (9) book-binding; (10) wood carving; (11) metal work (jewelry). Practically all pieces sent in will be accepted. There will be over 60 valuable prize awards. For details of membership in this Association and rules of the Exhibit, kindly write to Max Thorek, M. D., Sec'y, 850 Irving Park Blvd., Chicago, Ill., or F. H. Redewill, M. D., Pres., 521–536 Flood Bldg., San Francisco, Calif.

PROGRESS ON PEPPER-BOLAND BILL

It will be remembered that the Pepper-Boland Bill provides that the Federal Government will share the expense of educating physically handicapped children, including speech defectives, paying an equal amount to that paid by cities, counties and states.

Although this Bill was favorably reported in the Senate, Congress adjourned before it was enacted, hence it became necessary to begin all over again and submit it in both Senate and House at Washington.

It now bears the new number S. 795 in the Senate, and Senator Pepper hopes to report favorable action by the Senate Committee on Education and Labor upon the Hearing of the last session without going through the formality of a new hearing this session.

The following Senators are members of this Committee: Elbert D. Thomas, of Utah, Chairman; David I. Walsh, of Mass.; James E. Murray, of Montana; Vic Donahey, of Ohio; Rush D. Holt, of W. Va.; Claude Pepper, of Florida; Allen J. Ellender, of La.; Josh Lee, of Okla.; Lister Hill, of Alabama; Wm. E. Borah, of Idaho; Robert M. LaFollette, Jr., of Wis.; James J. Davis, of Pa.; and Robert A. Taft, of Ohio.

It is important that all members of the A. S. C. A. write to these Committeemen from their respective states and to their own Senators at Washington and urge them to support S. 795.

In the House of Representatives at Washington this Bill bears the number H. R. 1813. It has already been referred to the Committee on Education, composed of William H. Larrabee, of Indiana, Chairman; Rene L. DeRouen, of La.; Graham A. Barden, of N. C.; Edward J. Hart, of N. J.; Eugene J. Keogh, of N. Y.; Wade H. Kitchens, of Ark.; Lawrence J. Connery, of Mass.; Martin F. Smith, of Wash.; John Lesinski, of Mich.; Charles A. Buckley, of N. Y.; Michael J. Kirwan, of Ohio; Joseph R. Bryson, of S. C.; Thomas D'Alesandro, Jr., of Md.; Francis J. Myers, of Pa.; George A. Dondero, of Mich.; Frank C. Osmers, Jr., of N. J.; Robert A. Grant, of Ind.; Joshua L. Johns, of Wis.; Karl E. Mundt, of S. D.; and John C. Kunkel, of Pa.

A hearing will soon be arranged, and witnesses will be presented as they were at the Senate hearing; the A. S. C. A. should be represented at this hearing.

It is very important that members of the A. S. C. A. who reside in states which have Representatives on this Committee on Education write to these Committeemen at once and urge them to act favorably on this Bill. Members should also write to all Representatives from their respective states and urge them to support H. R. 1813.

Everywhere a greater interest is expressed in this legislation. There is a good chance this Bill will be passed if members of the A. S. C. A. and the other organizations who are working for it write plenty of letters promptly to their Congressmen.

Do not confuse this Bill with somewhat similar ones which do not include Federal aid for speech defectives.

Samuel D. Robbins,
Secretary and Member, Special Legislative Committee.